SONY®

CAMERA ADAPTOR

CA-50P

BETACAM™

OPERATION AND MAINTENANCE MANUAL

2nd Edition (Revised 4)

Serial No. 10126 and Higher

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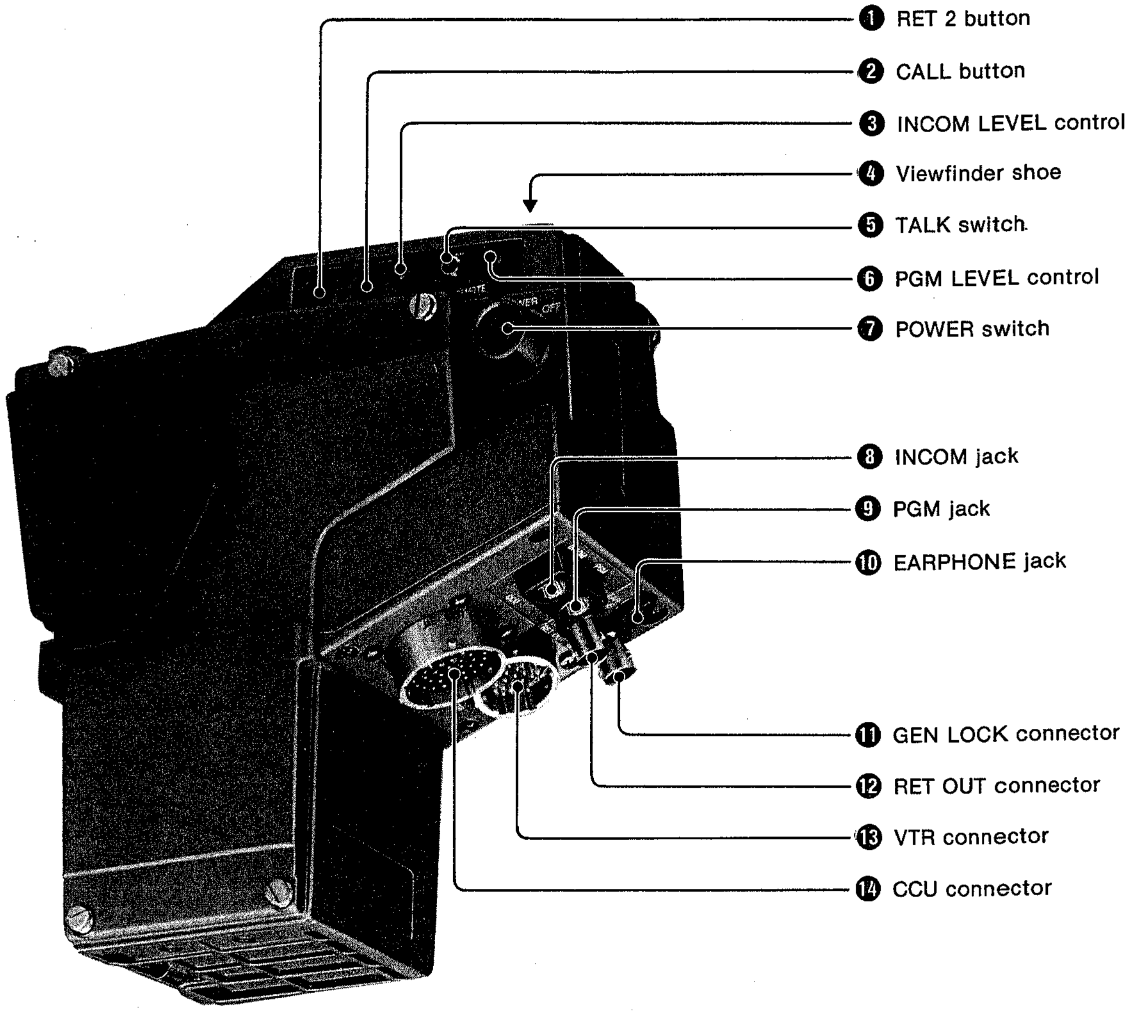
Section 1. Operation

The CA-50P camera adaptor is used to connect a Betacam color video camera other than a BVP-5P to a CCU-350P camera control unit or a portable VTR.
It can also be used to connect a BVP-5P color video camera to a portable VTR.

1-1. Location and Function of Parts


❶ RET 2 button
❷ CALL button
❸ INCOM LEVEL control
❹ Viewfinder shoe
❺ TALK switch
❻ PGM LEVEL control
❼ POWER switch
❽ INCOM jack
❾ PGM jack
❿ EARPHONE jack
⓫ GEN LOCK connector
⓬ RET OUT connector
⓭ VTR connector
⓮ CCU connector

❶ RET 2 (return video 2) button
While this button is depressed, the return video signal 2 can be monitored on the viewfinder screen.

❷ **CALL button**
When this button is pressed, the tally lamps on the CCU and on the viewfinder light up and the CCU operator is called.

❸ **INCOM (intercom) LEVEL control**
This control adjusts the intercom audio level.

❹ **Viewfinder shoe**
The Sony BVF-50CE 5-inch viewfinder is attached here.

❺ **TALK ON/REMOTE switch**
ON: The cameraman's voice is transmitted to the CCU.
REMOTE: Transmission of the cameraman's voice to the CCU is controlled by the VTR START button on the camera or the VTR button on the lens.

❻ **PGM (program audio) LEVEL control**
This control adjusts the program audio level.

❼ **POWER switch**
This switch turns the power to the CA-50P and the camera on and off.

❽ **INCOM (intercom) jack**
An intercom headset is connected here.

❾ **PGM (program audio) jack**
When a headset is connected here, you can listen to the program audio. When a headset equipped with a double-plug is connected to both the INCOM ❽ and PGM ❾ jacks, reception of the program audio and transmission/reception of the intercom audio are both possible.

❿ **EARPHONE jack (minijack)**
When an 8-ohm earphone is connected here, you can monitor the sound from the VTR.

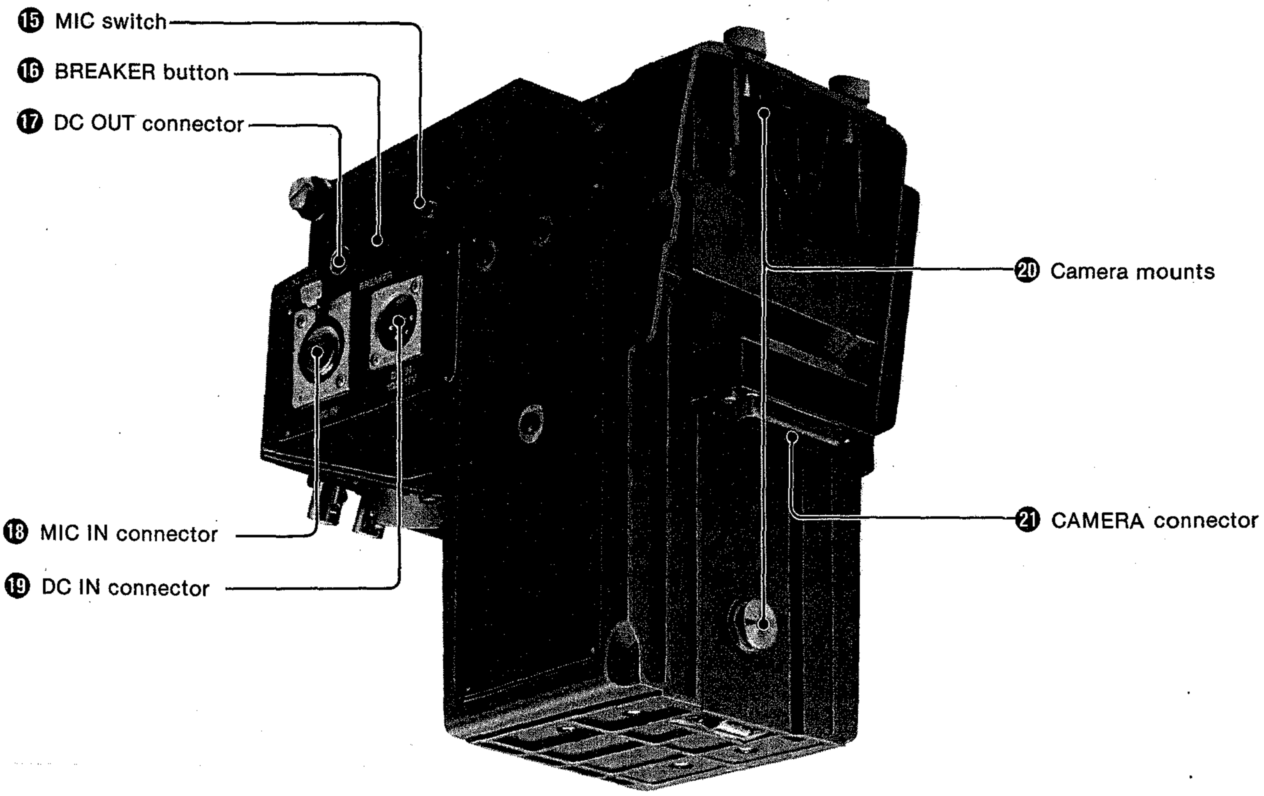
⓫ **GEN LOCK connector**
When a reference sync signal is supplied here, the camera is synchronized with external equipment.

⓬ **RET (return video) OUT connector**
This connector normally outputs the return video 1 signal. However, when the RET 2 button ❶ is depressed, it outputs the return video 2 signal.

⓭ **VTR connector (26-pin)**
The CAMERA connector of a VTR is connected here using a CCZQ or CCZ cable.

⓮ **CCU connector (41-pin)**
The CAMERA connector of a CCU-350P is connected here using a CCW-B or CCW cable.

When a headset with a dynamic microphone is used, remove the side panel of the CA-50P and change the setting of the short-plug located on the AU-107 board. (The plug is factory-preset for carbon microphones.) For details, refer to Section 2 "Installation".


⑮ MIC switch
⑯ BREAKER button
⑰ DC OUT connector
⑳ Camera mounts
㉑ CAMERA connector
⑱ MIC IN connector
⑲ DC IN connector

⑮ **MIC (microphone) switch**
INT: When the microphone built in the camera is used.
EXT: When an external microphone is used.

⑯ **BREAKER (circuit breaker) button**
When excessive current flows during camera operation, the circuit breaker automatically cuts off the power. After checking the inside of the camera, press this button to restore power to the camera.

⑰ **DC OUT connector**
This connector supplies DC power to an optional wireless receiver (available in the near future).
For details, refer to the manual to be furnished with the wireless receiver.

⑱ **MIC IN (external microphone input) connector (XLR, 3-pin)**
An external microphone can be connected here.

⑲ **DC IN connector (XLR, 4-pin)**
The DC power supply unit is connected here. When power is supplied to this connector, power from the VTR/CCU connector will be cut off.

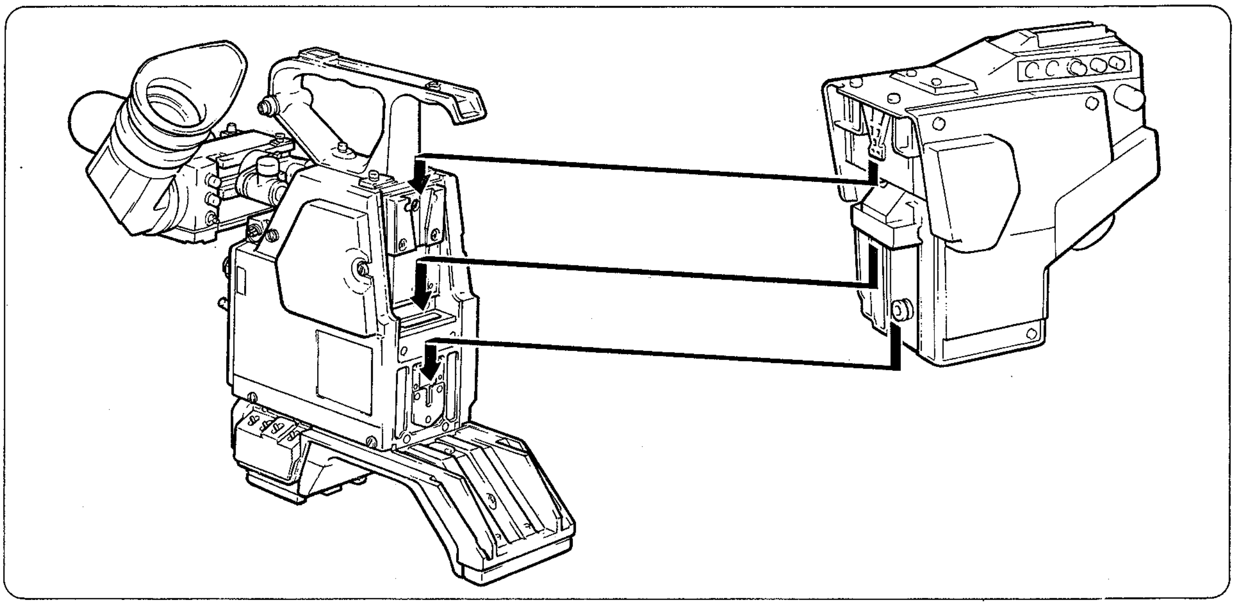
⑳ **Camera mounts**
The VTR mounts of the camera are inserted here.

㉑ **CAMERA connector (50-pin)**
When the CA-50P is mounted on the camera, the 50-pin connector on the camera is automatically connected here.

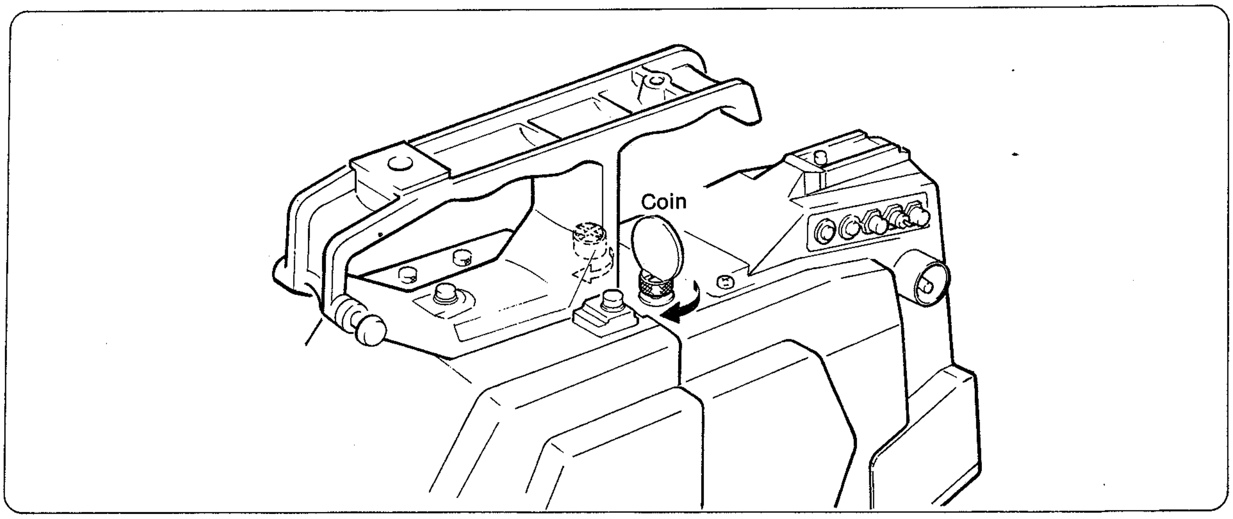
When a microphone, such as the Sony C-74, which can be operated using a phantom power system, is to be connected, remove the side panel of the CA-50P and turn the MIC POWER switch to ON. Power will be supplied to the microphone via the MIC IN connector ⑱.
Be sure to turn the switch OFF when a normal microphone is to be used.
For details on setting the switch, refer to Section 2 "Installation".

1-2. Attaching the CA-50P to the Camera

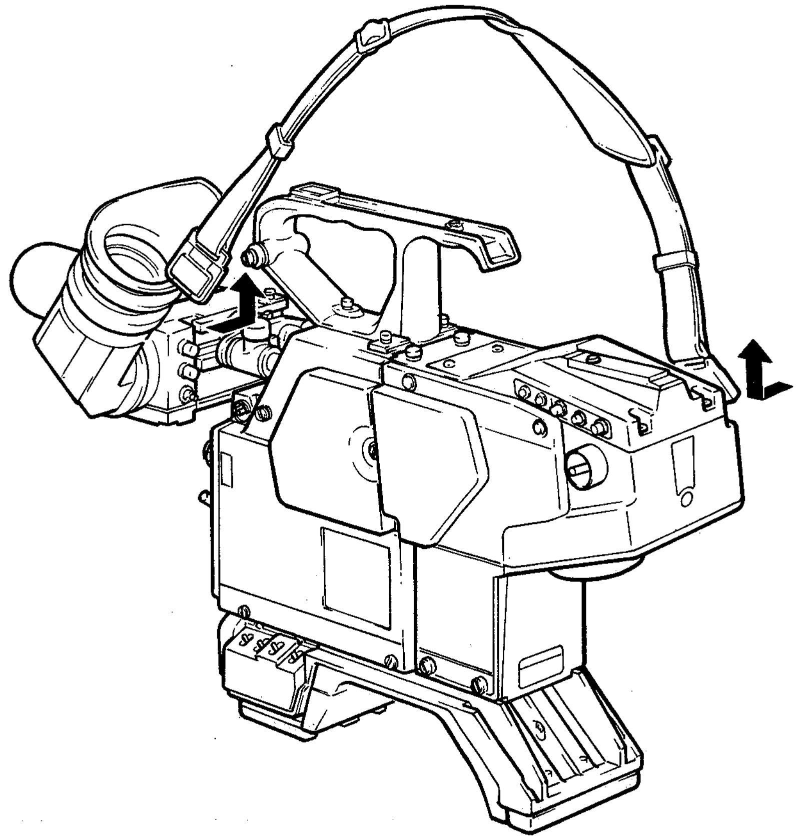
1

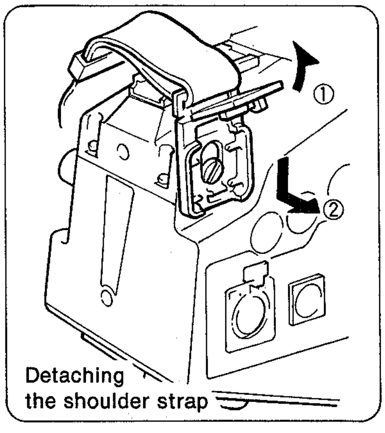


2



Attaching the shoulder strap





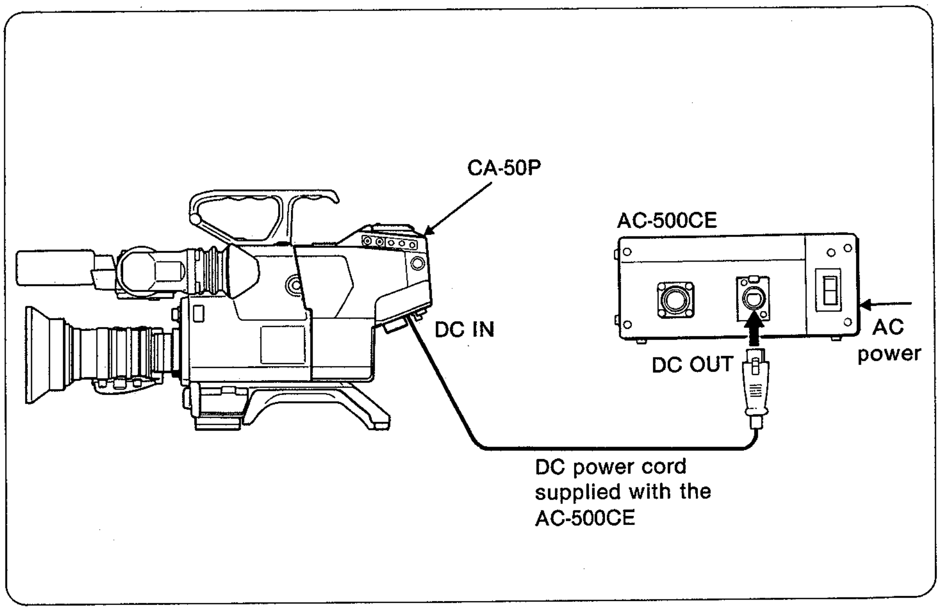
Detaching the shoulder strap

1-3. Power Supply

When the CA-50P is connected to the VTR or CCU, power is supplied to the camera from the connected VTR/CCU.
Alternatively, power is supplied using a DC cord by the AC adaptor or battery packs.

To operate on an AC power supply

Use the AC-500CE AC adaptor.

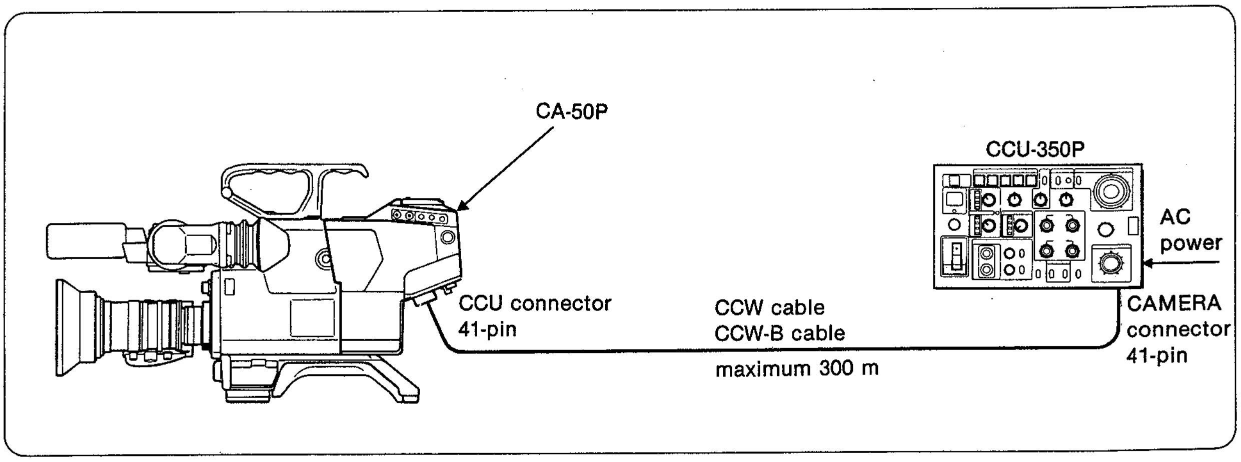

CA-50P
AC-500CE
DC IN
DC OUT
AC power
DC power cord supplied with the AC-500CE

When battery packs are used

The CA-50P can be operated using a BP-90/90A battery pack or two NP-1A battery packs. When using a BP-90/90A, attach a DC-300 or a DC-210 battery case to the CA-50P. When using two NP-1As, attach a DC-310 battery case to the CA-50P.
For details on how to attach the battery case, refer to the instruction manual supplied with the battery case.

1-4. Connections

Connection with the CCU-350P



When the CCU-350P is connected

- The following switches of the camera will not operate.
  - GAIN selector
  - OUTPUT (DCC ON/OFF) switch
  - WHT BAL (white balance) switch
  - AUTO W/B (automatic white balance/black balance) switch
- The PEDESTAL control of the camera will not operate.
- The camera cannot be controlled by the remote control unit connected to the REMOTE connector of the camera.
- The SHUTTER selector of the camera will operate only when the SHUTTER SPEED selector of the CCU-350P is set to "0".

Scene file

Scene file function is available when the CA-50P is connected to a CCU-350P with a BKP-3601L (or another remote control panel.)

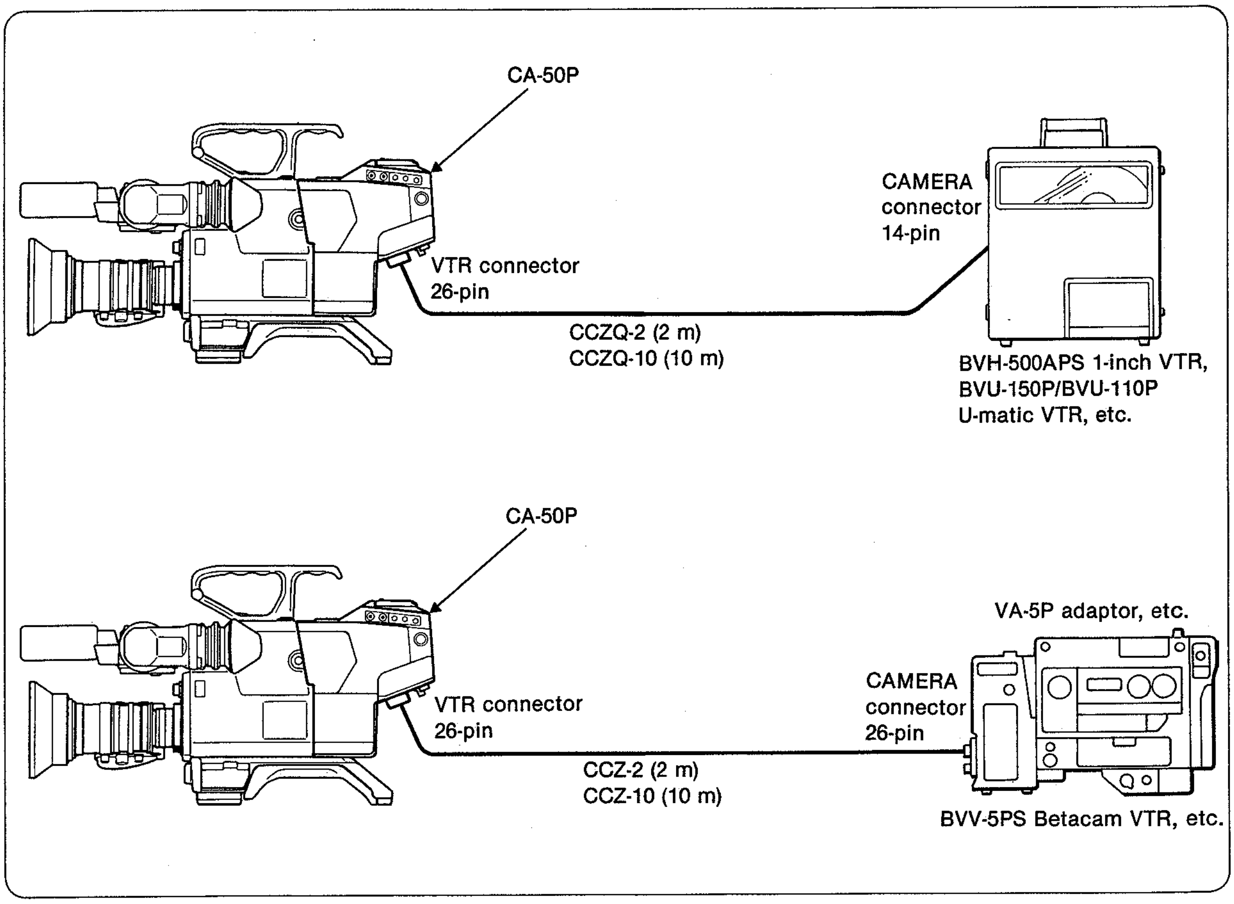
Contents

White (R, B)	TEST signal ON/OFF
Black (R, B)	Color bars signal ON/OFF
Gamma (R, B, Master)	Master gain
Flare (R, B)	Detail OFF
Iris	Auto Knee ON
Master black	Shutter ON/OFF, speed
Detail	
Master knee	

See the operation manual of the connected equipment for controllable functions.

The CCU-350P is not designed to control the BVP-5P.

Making connection with a VTR


CA-50P
CAMERA connector 14-pin
VTR connector 26-pin
CCZQ-2 (2 m)
CCZQ-10 (10 m)
BVH-500APS 1-inch VTR, BVU-150P/BVU-110P U-matic VTR, etc.
CA-50P
VA-5P adaptor, etc.
CAMERA connector 26-pin
VTR connector 26-pin
CCZ-2 (2 m)
CCZ-10 (10 m)
BVV-5PS Betacam VTR, etc.

The CA-50P and the AC-500CE AC adaptor are connected to each other with a CCZQ cable. In this case, video and audio signals are supplied to the AC-500CE at the same time that power is supplied to the camera.

Notes

- The CCU-350P and a VTR cannot both be connected to the CA-50P at the same time.
- The BVF-50CE cannot be used when power is supplied from a portable VTR, because the portable VTR cannot supply sufficient power.
- When a 10 m-cable is used, supply power to the camera independently.
  If you do not, battery life will be shortened.

1-5. Specifications

Connectors

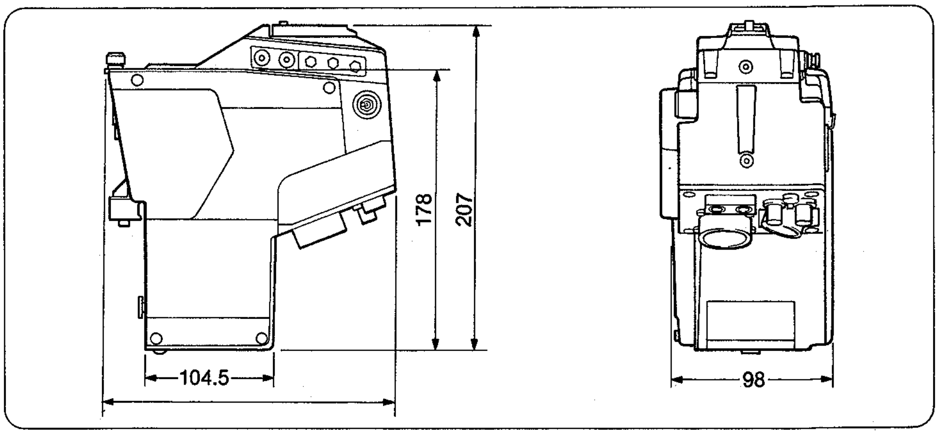
GEN LOCK	BNC type, 1 Vp-p, 75 ohms, unbalanced
MIC IN	XLR 3-pin, Female, 600 ohms, balanced
DC IN 12 V	XLR 4-pin, DC 10.5 - 17 V
RET OUT	BNC type, 1 Vp-p, 75 ohms, unbalanced
EARPHONE	Minijack, 8-ohm impedance load
DC OUT	Outputs power from the source being used
INCOM	Microphone: Carbon/Dynamic (selectable)
PGM	
VTR	26-pin
CCU	41-pin
CAMERA	50-pin

General

Power consumption	2 W
Weight	1.5 kg
Operating temperature	−20°C to +45°C (−4°F to +113°F)
Storage temperature	−20°C to +50°C (−4°F to +122°F)
Supplied accessories	Shoulder strap (1) Operation and maintenance manual (1)

Dimensions

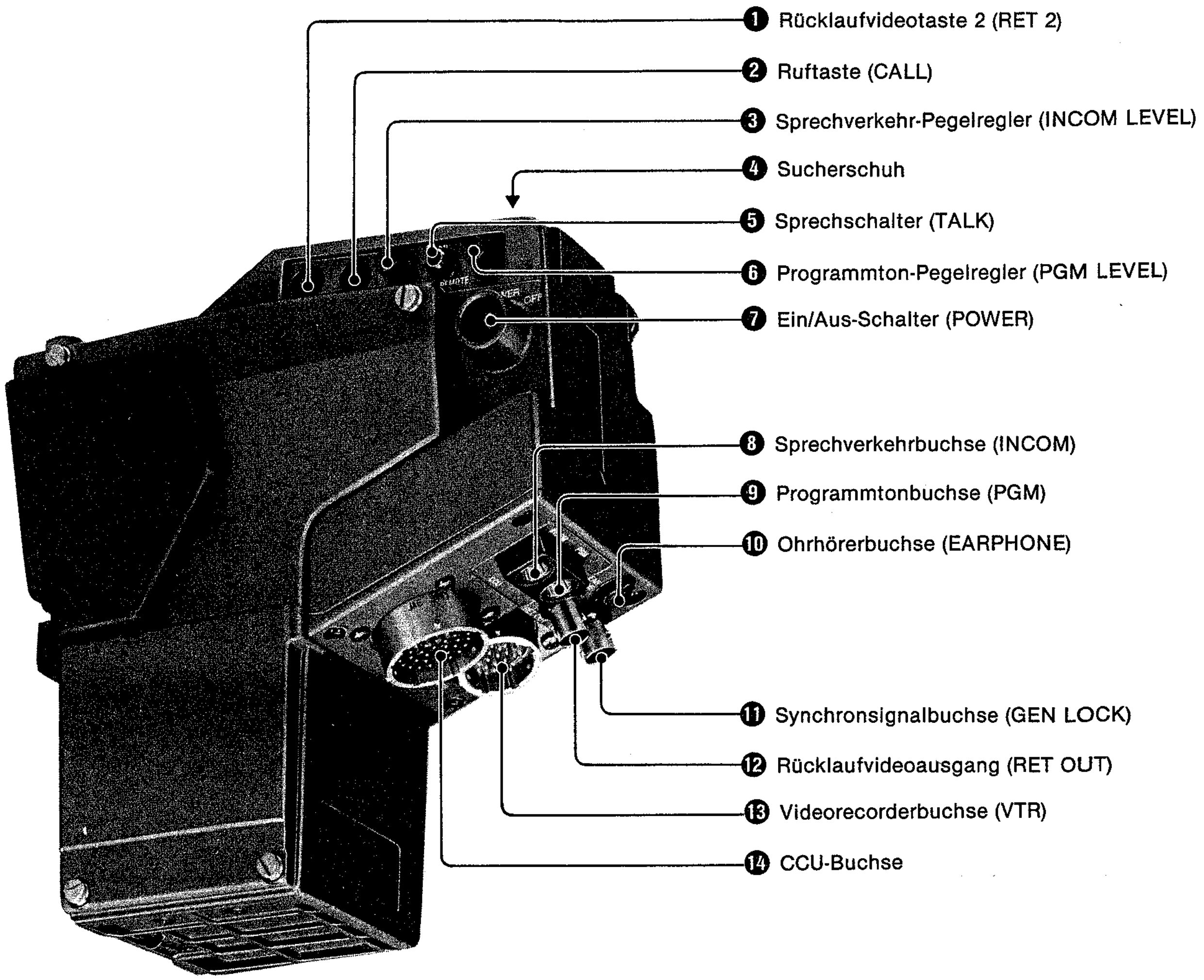
Unit: mm



Teil 1. Betrieb

Der Kameraadapter CA-50P ist zum Anschluß einer Betacam Farb-Videokamera (außer BVP-5P) an die Kamera-Steuereinheit CCU-350P bestimmt.
Darüber hinaus kann der Adapter auch dazu verwendet werden, die Farb-Videokamera BVP-5P an einen portablen Videorecorder anzuschließen.

1-1. Lage und Funktion der Teile


❶ Rücklaufvideotaste 2 (RET 2)
❷ Ruftaste (CALL)
❸ Sprechverkehr-Pegelregler (INCOM LEVEL)
❹ Sucherschuh
❺ Sprechschalter (TALK)
❻ Programmton-Pegelregler (PGM LEVEL)
❼ Ein/Aus-Schalter (POWER)
❽ Sprechverkehrbuchse (INCOM)
❾ Programmtonbuchse (PGM)
❿ Ohrhörerbuchse (EARPHONE)
⓫ Synchronsignalbuchse (GEN LOCK)
⓬ Rücklaufvideoausgang (RET OUT)
⓭ Videorecorderbuchse (VTR)
⓮ CCU-Buchse

❶ **Rücklaufvideotaste 2 (RET 2)**
Wenn diese Taste gedrückt wird, erhält man das Rücklaufvideosignal 2 auf dem Sucherschirm.

❷ **Ruftaste (CALL)**
Wenn diese Taste gedrückt wird, leuchten die Signallampen an der CCU und im Sucher auf, um das CCU-Bedienpersonal zu rufen.

❸ **Sprechverkehr-Pegelregler (INCOM LEVEL)**
An diesem Regler wird der Sprechverkehr-Tonpegel eingestellt.

❹ **Sucherschuh**
Zur Anbringung des Sony 5-Zoll-Suchers BVF-50CE.

❺ **Sprechschalter (TALK ON/REMOTE)**
ON: Die Stimme des Kameramanns wird direkt zur CCU übertragen.
REMOTE: Die Übertragung der Stimme des Kameramanns zur CCU wird durch die VTR START-Taste an der Kamera oder an der VTR-Taste am Objektiv gesteuert.

❻ **Programmton-Pegelregler (PGM LEVEL)**
Dieser Regler dient zur Einstellung des Programm-Tonpegels.

❼ **Ein/Aus-Schalter (POWER)**
Dieser Schalter dient zum Ein- und Ausschalten des Adapters CA-50P und der Kamera.

❽ **Sprechverkehrbuchse (INCOM)**
Zum Anschluß einer Hör-Sprechgarnitur.

❾ **Programmtonbuchse (PGM)**
Zum Anschluß einer Hör-Sprechgaranitur, über die der Programmton zu hören ist.
Wird eine mit Zweifach-Stecker ausgestattete Hör-Sprechgarnitur an die Buchsen INCOM ❽ und PGM ❾ angeschlossen, so ist sowohl Empfang des Programmtons als auch Sprechverkehr möglich.

❿ **Ohrhörerbuchse (EARPHONE) (Minibuchse)**
An dieser Buchse kann ein 8-Ohm-Ohrhörer angeschlossen werden, um den Ton des Videorecorders mitzuhören.

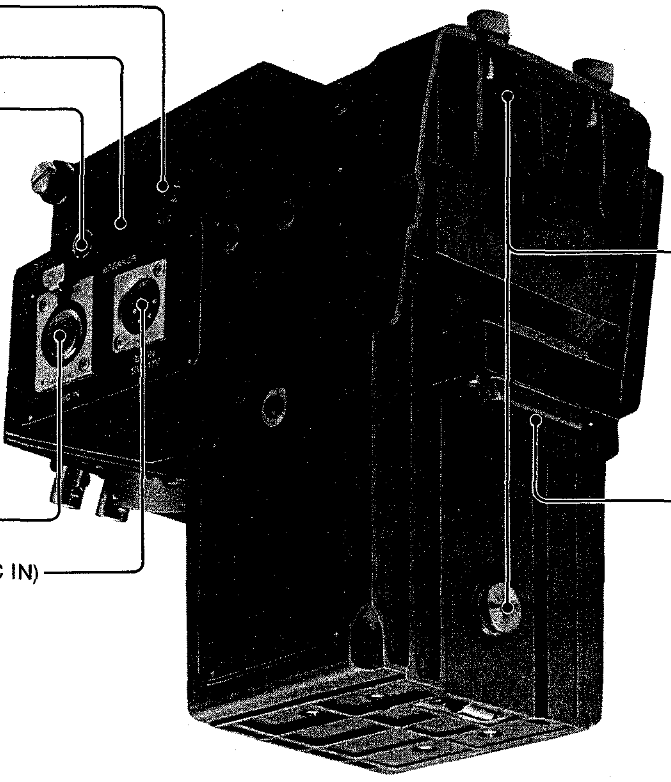
⓫ **Synchronsignalbuchse (GEN LOCK)**
Zur externen Synchronisierung der Kamera kann dieser Buchse ein Referenz-Synchronsignal zugeleitet werden.

⓬ **Rücklaufvideoausgang (RET OUT)**
Über diese Buchse wird normalerweise das Rücklaufvideosignal 1 ausgegeben. Wird jedoch die RET 2-Taste ❶ gedrückt, so liefert die Buchse das Rücklaufvideosignal 2.

⓭ **Videorecorderbuchse (VTR) (26pol)**
Diese Buchse wird über ein CCZQ- oder CCZ-Kabel mit der CAMERA-Buchse des Videorecorders verbunden.

⓮ **CCU-Buchse (CCU) (41pol)**
Diese Buchse wird über ein CCW-B- oder CCW-Kabel mit der CAMERA-Buchse der CCU-350P verbunden.

Bei Verwendung einer Hör-Sprechgarnitur mit dynamischem Mikrofon muß das Seitenteil des CA-50P abgenommen und der Kurzschlußstecker auf der Leiterplatte AU-107 umgesteckt werden.
(Der Stecker ist werksseitig für Kohlemikrofone voreingestellt.)
Genaueres siehe unter „Installation“ im Teil 2.


⑮ Mikrofonschalter (MIC)
⑯ Sicherungstaste (BREAKER)
⑰ Gleichspannungsausgang (DC OUT)
⑱ Mikrofoneingang (MIC IN)
⑲ Gleichspannungseingang (DC IN)
⑳ Kamerahalterungen
㉑ Kamerabuchse (CAMERA)

⑮ **Mikrofonschalter (MIC)**
INT: Zur Verwendung des in der Kamera eingebauten Mikrofons.
EXT: Zur Verwendung eines Außenmikrofons.

⑯ **Sicherungstaste (BREAKER)**
Wenn aufgrund eines zu hohen Stromflußes während des Kamerabetriebs der Strom vom Sicherungs-Schaltkreis unterbrochen wurde, kann er (nach einer Kamera-internen Überprüfung) durch Drücken dieser Taste wieder eingeschaltet werden.

⑰ **Gleichspannungsausgang (DC OUT)**
Diese Buchse liefert die Versorgungsspannung für den in Kürze lieferbaren Receiver (für drahtlose Fernbedienung).
Genaueres hierzu kann der Anleitung des Receivers entnommen werden.

⑱ **Außenmikrofonbuchse (MIC IN) (XLR, 3pol)**
Zum Anschluß eines Außenmikrofons.

⑲ **Gleichspannungseingang (DC IN) (XLR, 4pol)**
Zur Zuleitung der Versorgungs-Gleichspannung. Bei Zuleitung der Spannung wird die Versorgung von der VTR/CCU-Buchse automatisch unterbrochen.

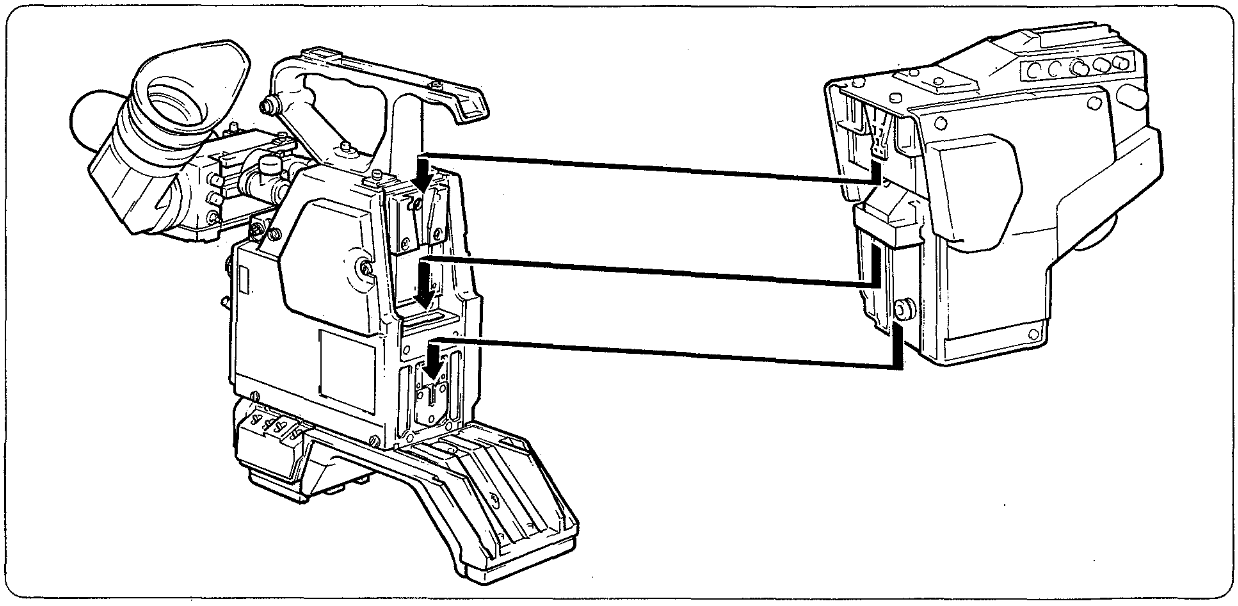
⑳ **Kamerahalterungen**
Zur Befestigung an den Videorecorderhalterungen der Kamera.

㉑ **Kamerabuchse (CAMERA) (50pol)**
Bei der Anbringung des CA-50P an die Kamera wird diese Buchse automatisch mit der 50pol Buchse der Kamera verbunden.

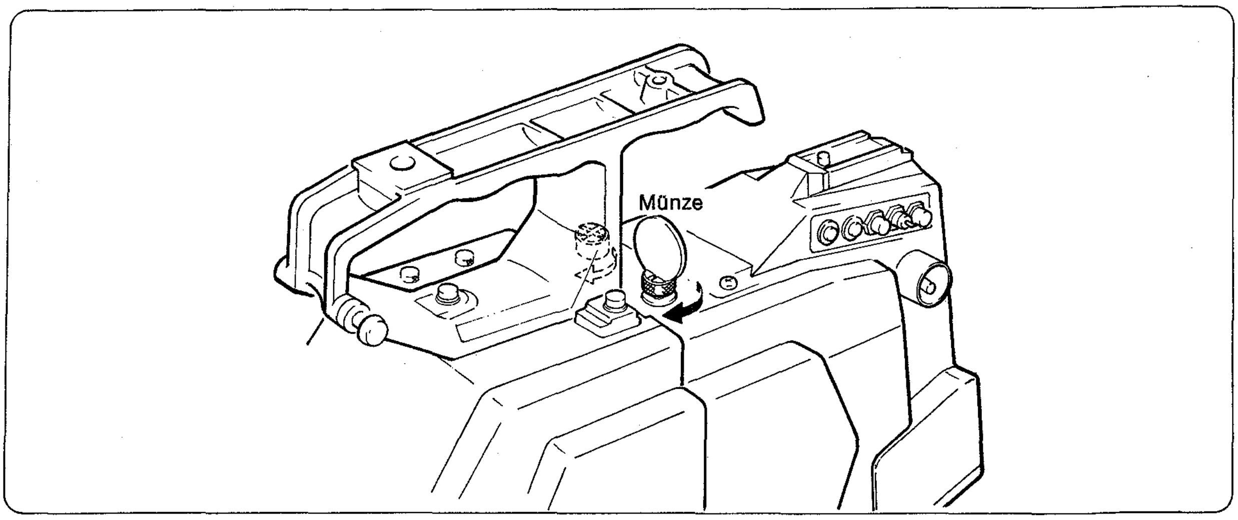
Wenn ein Mikrofon mit Phantom-Speisesystem (z.B. das Sony Mikrofon C-74) angeschlossen wird, nehmen Sie das Seitenteil des CA-50P ab und schalten Sie den MIC POWER-Schalter auf ON. Das Mikrofon wird dann über die MIC IN-Buchse ⑱ gespeist.
Bei Verwendung eines normalen Mikrofons muß der Schalter stets auf OFF stehen.
Genaueres zur Schalter-Einstellung siehe unter „Installation“ im Teil 2.

1-2. Anbringung des CA-50P an der Kamera

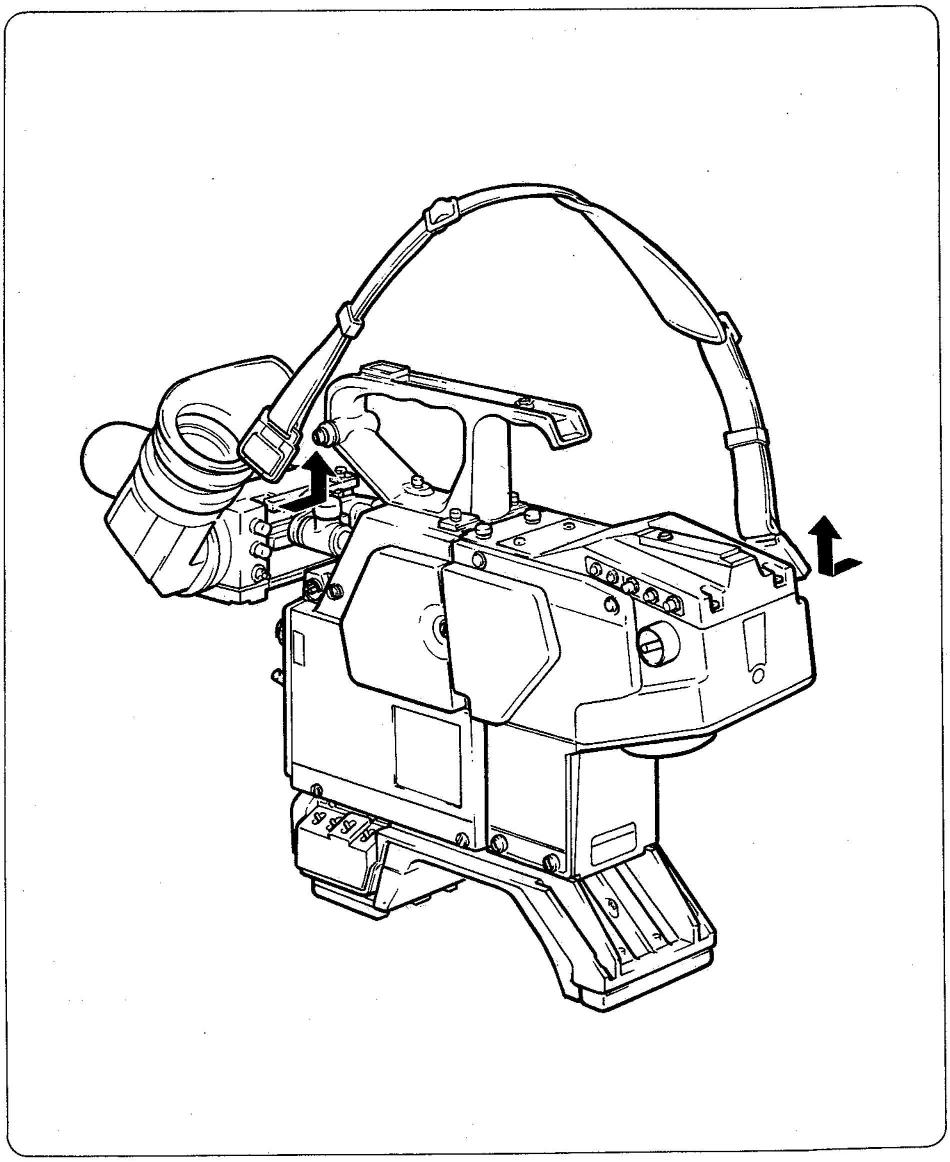
1

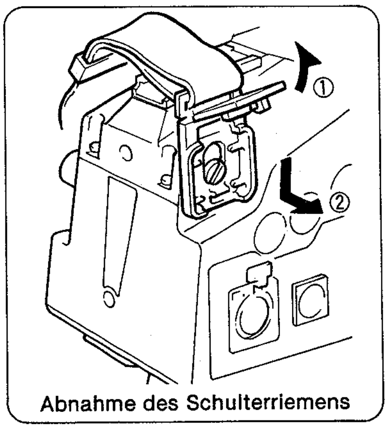


2



Anbringung des Schulterriemens





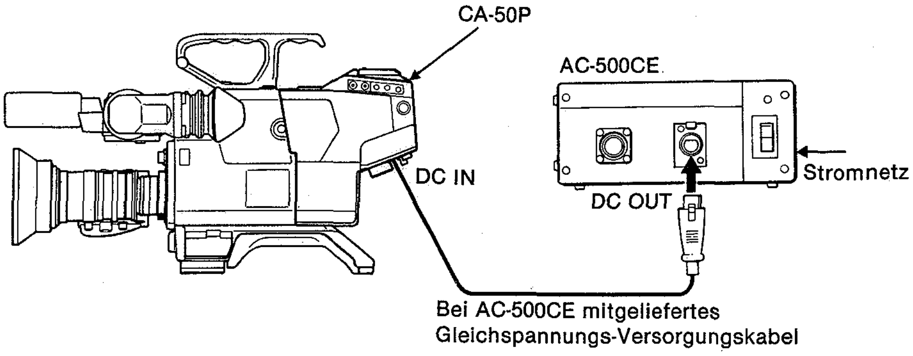
Abnahme des Schulterriemens

1-3. Stromversorgung

Bei Anschluß des Adapters CA-50P an den Videorecorder oder die CCU erfolgt die Stromversorgung der Kamera vom Videorecorder bzw. der CCU.
Wahlweise kann die Stromversorgung auch von einem Netzadapter oder einem Akku (unter Verwendung eines Gleichspannungs-Versorgungskabels) erfolgen.

Betrieb mit Netzadapter

Verwenden Sie den Netzadapter AC-500CE.

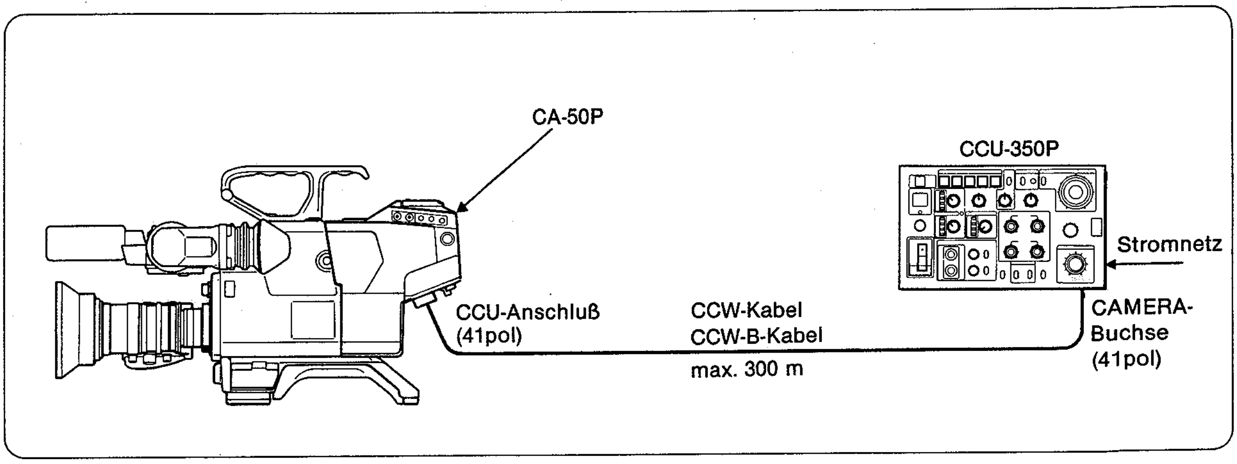

CA-50P
AC-500CE
DC IN
DC OUT
Stromnetz
Bei AC-500CE mitgeliefertes
Gleichspannungs-Versorgungskabel

Betrieb mit Akku

Der Adapter CA-50P kann mit einem Akku vom Typ BP-90/90A oder mit zwei Akkus vom Typ NP-1A betrieben werden. Bei Verwendung des Akkus BP-90/90A bringen Sie den Batteriebehälter DC-300 oder DC-210 am CA-50P an. Wenn dagegen zwei NP-1A verwendet werden, bringen Sie den Batteriebehälter DC-310 am CA-50P an.
Genaueres zur Anbringung des Batteriebehälters entnehmen Sie bitte der bei ihm mitgelieferten Anleitung.

1-4. Anschluß

Anschluß an CCU-350P



Hinweise zum Anschluß an die CCU-350P

- Folgende Bedienungselemente der Kamera arbeiten nicht:
  GAIN-Wähler
  OUT PUT (DCC ON/OFF)-Schalter
  WHT BAL-Schalter
  AUTO W/B-Schalter
- Außerdem arbeitet der PEDESTAL-Regler der Kamera nicht.
- Die Kamera kann nicht von einer an ihrer REMOTE-Buchse angeschlossenen Fernsteuereinheit aus gesteuert werden.
- Der SHUTTER-Wähler der Kamera arbeitet nur, wenn der SHUTTER SPEED-Wähler der CCU-350P auf 0 steht.

Szenen-Datei

Szenen-Dateien können verarbeitet werden, wenn der CA-50P an die CCU-350P und eine Fernsteuereinheit (z.B. BKP-3601L) angeschlossen ist.

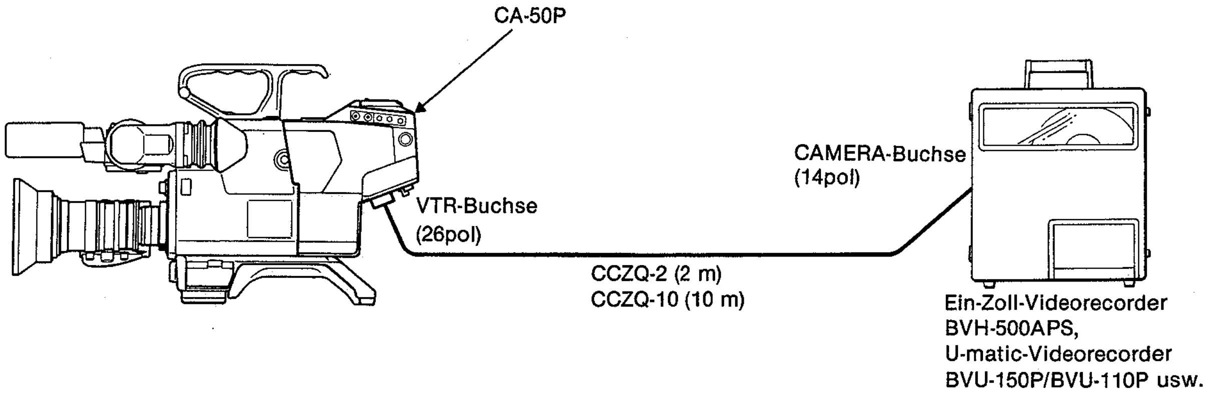
Inhalt

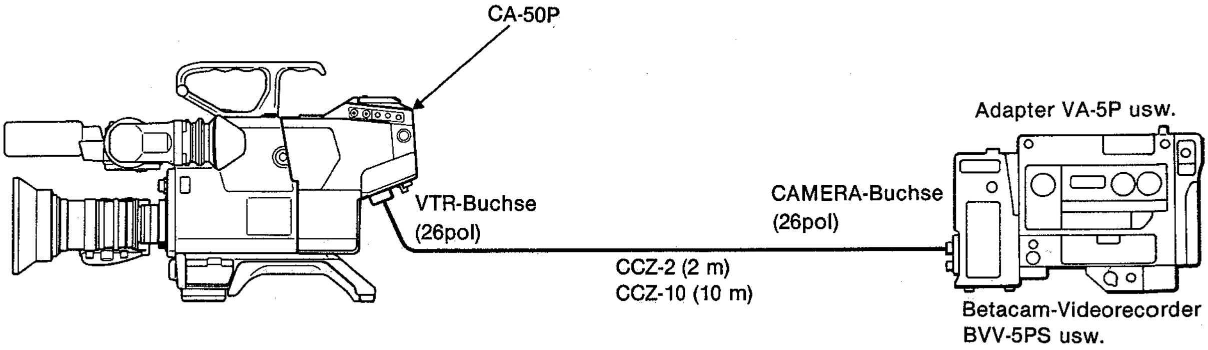
Weiß (R, B)	Ein/Aus für Testsignal
Schwarz (R, B)	Ein/Aus für Farbbalkensignal
Gamma (R, B, Master)	Hauptverstärkung
Flare (R, B)	Aus für Detail
Blende	Ein für Kniewertautomatik
Hauptschwarzwert	Ein/Aus Belichtungszeitänderung, Einstellung der Belichtungszeit
Detail	
Hauptkniewert	

Einzelheiten bezüglich der steuerbaren Funktionen entnehmen Sie bitte den Anleitungen der betreffenden Geräte.

Die CCU-350P dient nicht zur Steuerung der BVP-5P.

Anschluß an einen Videorecorder


CA-50P
CAMERA-Buchse
(14pol)
VTR-Buchse
(26pol)
CCZQ-2 (2 m)
CCZQ-10 (10 m)
Ein-Zoll-Videorecorder
BVH-500APS,
U-matic-Videorecorder
BVU-150P/BVU-110P usw.


CA-50P
Adapter VA-5P usw.
CAMERA-Buchse
(26pol)
VTR-Buchse
(26pol)
CCZ-2 (2 m)
CCZ-10 (10 m)
Betacam-Videorecorder
BVV-5PS usw.

Wenn der Kameraadapter CA-50P über ein CCZQ-Kabel mit dem Netzadapter AC-500CE verbunden wird, übernimmt das Kabel nicht nur die Übertragung der Audio- und Videosignale, sondern auch die Stromversorgung der Kamera.

Hinweise

- CCU-350P und Videorecorder können nicht gleichzeitig an den CA-50P angeschlossen werden.
- Wenn die Stromversorgung von einem portablen Videorecorder aus erfolgt, kann der Sucher BVF-50CE nicht verwendet werden, da der portable Videorecorder nicht genug Strom liefern kann.
- Bei Verwendung eines 10-m-Kabels sollte die Kamera-Stromversorgung getrennt erfolgen, da sich sonst die Batterie-Lebensdauer verkürzt.

1-5. Technische Daten

Buchsen

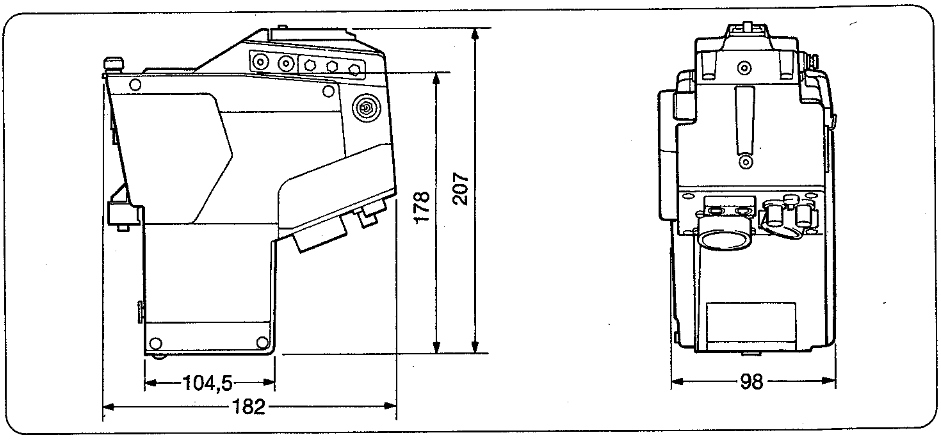
GEN LOCK	BNC-Buchse, 1 Vss, 75 Ohms, unsymmetrisch
MIC IN	XLR 3 pol Buchse, 600 Ohm, symmetrisch
DC IN 12 V	XLR 4 pol, 10,5—17 V Gleichspannung
RET OUT	BNC-Buchse, 1 Vss, 75 Ohm, unsymmetrisch
EARPHONE	Minibuchse, 8 Ohm Impedanz
DC OUT	Zur Stromversorgung des angeschlossenen Receivers
INCOM	Für Kohlemikrofon oder dynamisches Mikrofon (wählbar)
PGM	
VTR	26pol
CCU	41pol
CAMERA	50pol

Allgemeine Daten

Leistungsaufnahme	2 W
Gewicht	1,5 kg
Betriebstemperatur	−20°C bis +45°C
Lagertemperatur	−20°C bis +50°C
Mitgeliefertes Zubehör	Schulterriemen (1) Bedienungs- und Wartungsanleitung (1)

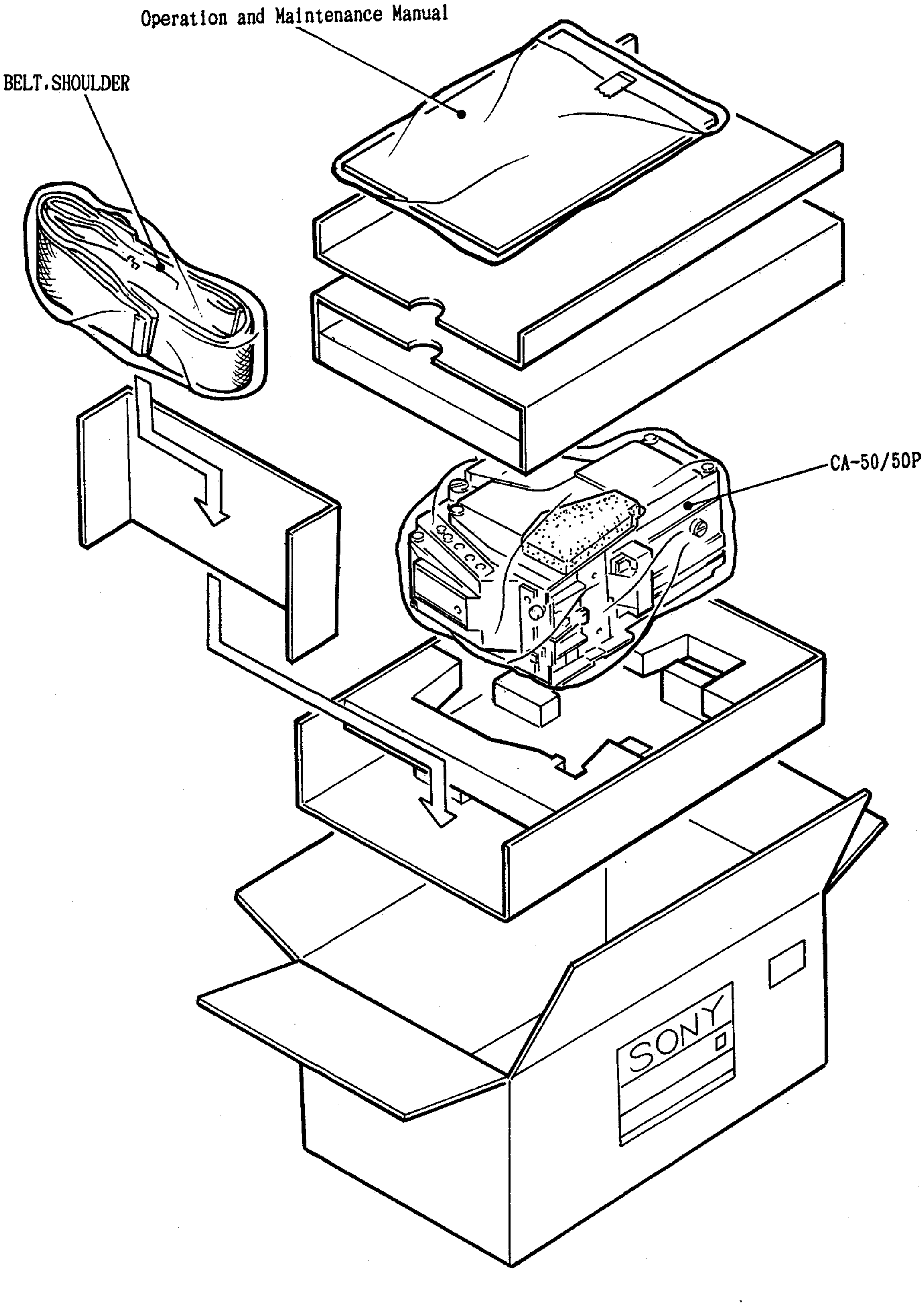
Abmessungen

Einheit: mm



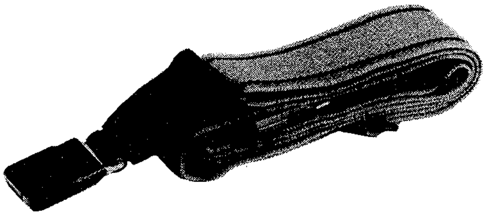
SECTION 2
INSTALLATION

2-1. UNPACKING AND REPACKING


Operation and Maintenance Manual
BELT, SHOULDER
CA-50/50P
SONY

2-2. SUPPLIED ACCESSORIES

Belt, Shoulder : ×1
Used for shoudering the Betacam camera with the CA-50/50P attached using it.



Operation and Maintenance Manual : ×1
Instruction and Service manual for CA-50/50P.

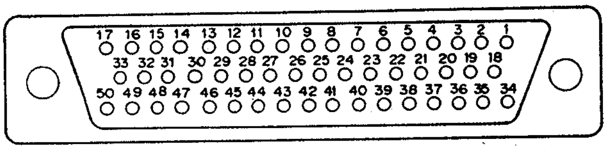
2-3. CONNECTORS/CABLE

2-3-1. Connector Input/Output signals

The main connector input/output signals are as follows;

REC OUT	VBS signal 1.0Vp-p Zo = 75Ω
GENLOCK	VBS signal 1.0Vp-p or BS signal 0.3Vp-p Zi = 75Ω
EARPHONE	1kHz OdBm Zo = 8Ω

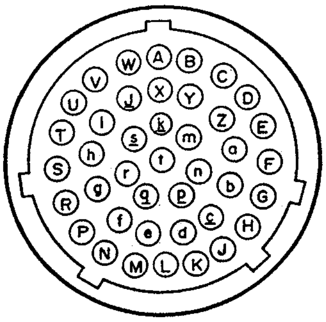
50-PIN CONNECTOR



(EXTERNAL SIDE)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GEN(X)/SC CONT OUT	VBS SIGNAL 1Vp-p
2	GEN(G)/H CONT OUT	SC/H CONT SIGNAL 0 ~ 5 Vdc
3	+9V IN	+9V
4	- 5V IN	- 5V
5	GND(POWER)	GND for POWER
6	GND(POWER)	
7	R VIDEO IN (X)	Zi ≥ 10k ohm, 0.7Vp-p
8	G VIDEO IN (X)	
9	B VIDEO IN (X)	
10	GND (RGB)	GND for R.G.B VIDEO
11	(SPARE)	
12	(SPARE)	
13	(SPARE)	
14	SERIAL DATA IN/OUT	Serial data for camera control
15	MIC IN (G)	Zi ≤ 600 ohm, -60dBm balanced
16	MIC IN (X)	
17	MIC IN (Y)	
18	RET VIDEO OUT (X)	
19	RET VIDEO OUT (G)	
20	(SPARE)	
21	(SPARE)	
22	GRN TALLY OUT	ON:4.5V, OFF:GND or OPEN
23	(SPARE)	
24	REC ALRAM OUT	ON: +5V, OFF: +2.5V or 0V Zo > 20k ohm
25	BATT IND OUT	ON: +5V,OFF:0V or OPEN Zo = 300 ohm
26	PB REF OUT	PB: +4.5V CAM:0V or OPEN
27	VTR START/STOP IN	START: +5V STOP:0V or OPEN Zi: ≤10k ohm

PIN No.	SIGNAL	REMARK FOR SIGNAL
28	(SPARE)	
29	R-Y VIDEO IN (X)	Zi = 1k ohm, 700mVp-p(CA-50) 525mVp-p(CA-50P) (75% COLOR BARS)
30	R-Y VIDEO IN (G)	
31	(SPARE)	
32	VTR SAVE IN	SAVE: +4.5V STAND BY:0V Zi ≤ 10k ohm
33	AUDIO MONITOR OUT	
34	SYNC (VTR) IN	; +5Vp-p.Zi ≤ 100 ohm
35	(SPARE)	
36	SHUTTER OUT	
37	CF IN	
38	RET VIDEO CONT IN	ENABLE:0V DISABLE: +5V or OPEN
39	POWER (+) OUT	+10.5 ~ +17V
40	POWER (+) OUT	
41	Y VIDEO IN (X)	Zi = 1k ohm,1.0Vp-p
42	Y VIDEO IN (G)	
43	VBS IN (X)	VBS SIGNAL 1Vp-p.Zi = 75 ohm
44	VBS IN (G)	
45	(SPARE)	
46	(SPARE)	
47	(SPARE)	
48	(SPARE)	
49	B-Y VIDEO IN (X)	Zi = 1k ohm 700mVp-p(CA-50) 525mVp-p(CA-50P) (75% COLOR BARS)
50	B-Y VIDEO IN (G)	



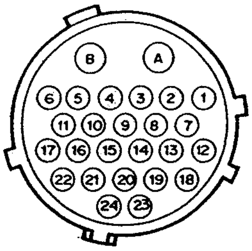
(EXT VIEW)

CCU (41 PIN)

PIN NAME	SIGNAL	REMARK FOR SIGNAL
A	POWER SENS (-) OUT	Between pin A and pin Y DC16V
B	(SPARE)	
C	(SPARE)	
D	VBS OUT (G)	GND for VBS VIDEO
E	(SPARE)	
F	PGM IN (G)	GND for PGM AUDIO
G	(SPARE)	
H	RETURN VIDEO IN (G)	GND for RETURN VIDEO
J	(SPARE)	
K	MIC OUT (Y)	-20dBs.Zo = 600 ohm
L	MIC OUT (G)	GND for MIC SIGNAL
M	H SPARE CONT IN	5.0Vp-p, Zi = 4700 ohm
N	SERIAL DATA OUT	2.5Vp-p, Zo = 470 ohm
P	SERIAL DATA (GND)	GND for SERIAL DATA
R	INCOM RECEIVE OUT (Y)	Between pin R and pin g -20dB
S	INCOM TALK/RECEIVE OUT(G)	GND for INCOM TALK/RECEIVE
T	G OUT (G)	GND for G/Y VIDEO
U	(SPARE)	
V	B OUT (G)	GND for B/B-Y VIDEO
W	SC PHASE CONT IN	
X	R OUT (G)	GND for R/R-Y VIDEO
Y	POWER SENS (+) OUT	Between pin Y and pin A DC 16V
Z	VBS OUT (X)	1.0Vp-p, Zo = 75 ohm

PIN NAME	SIGNAL	REMARK FOR SIGNAL
a	PGM IN (X)	-20dB
b	PGM IN (Y)	
c	RETURN VIDEO IN (X)	1.0Vp-p, Zo = 75 ohm
d	MIC OUT (X)	-20dBs, Zo = 600 ohm
e	SERIAL DATA IN	2.5Vp-p, Zi = 4700 ohm
f	INCOM TALK IN (X)	Between pin f and pin q, -20dB
g	INCOM RECEIVE OUT (X)	Between pin g and pin R, -20dB
h	(SPARE)	
i	Y OUT (X)	0.7Vp-p/1.0Vp-p,Zo = 75 ohm
j	B-Y OUT (X)	Zo = 75 ohm 700mVp-p(CA-50) 525mVp-p(CA-50P) (75% COLOR BARS)
k	R-Y OUT (X)	Zo = 75 ohm 700mVp-p(CA-50) 525mVp-p(CA-50P) (75% COLOR BARS)
m	(SPARE)	
n	POWER (+) IN	10.5 ~ 17V
p	(SPARE)	
q	INCOM TALK IN (Y)	Between pin q and pin f, -20dB
r	GND (POWER)	GND for POWER
s	(SPARE)	
t	(SPARE)	

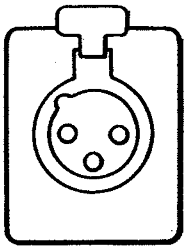
VTR (26PIN)



(EXT VIEW)

PIN No.	VTR	
	SIGNAL	REMARK FOR SIGNAL
1	COMPOSITE VIDEO OUT (X)	1.0Vp-p,75 ohm
2	COMPOSITE VIDEO OUT (G)	
3	Y OUT (G)	1.0Vp-p,75 ohm
4	Y OUT (X)	
5	R-Y OUT (X)	75 ohm 700mVp-p(CA-50) 525mVp-p(CA-50P) (75% COLOR BARS)
6	R-Y OUT (G)	
7	B-Y OUT (X)	75 ohm 700mVp-p(CA-50) 525mVp-p(CA-50P) (75% COLOR BARS)
8	B-Y OUT (G)	
9	MIC OUT (X)	-60dBs, 600 ohm
10	MIC OUT (Y)	
11	MIC OUT (G)	
12	VTR START/STOP OUT	START : 4.5 ± 0.5Vdc STOP : 0 ± 0.5Vdc
13	BATTERY ALARM IN	(Note 1)
14	(SPARE)	
15	REC/ALARM IN	(Note 2)
16	(SPARE)	
17	SHIELD	
18	PB VIDEO IN (X)	1.0Vp-p,75 ohm
19	PB VIDEO IN (G)	
20	POWER SAVE OUT/ AUDIO MONITOR IN	SAVE: 4.5 ± 0.5Vdc (across 10k ohm) STANDBY: 9.0 ± 0.5Vdc (accross 10k ohm) MONITOR: -6dBs,750 ohm
21	(SPARE)	
22	COLOR FRAMING PULSE OUT	This signal is not used in VTR.
23	(SPARE)	
24	(SPARE)	
A	UNREG +12V IN	10.6 ~ 17.0V
B	UNREG GND	

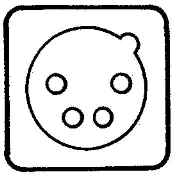
MIC IN (3PIN)



(EXT VIEW)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GND	600ohm, -60dB
2	MIC IN (Y)	
3	MIC IN (X)	

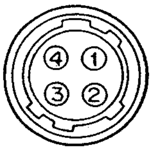
DC IN (4PIN)



(EXT VIEW)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) IN	10.5 ~ 17.0V

DC OUT (4PIN)

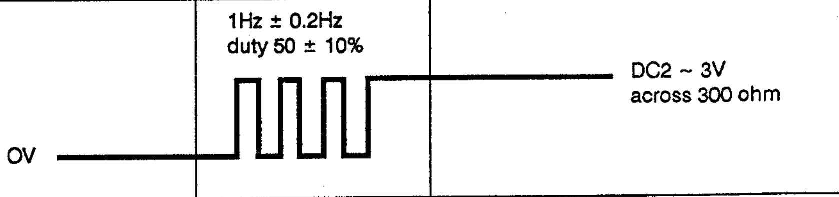


(EXT VIEW)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) OUT	10.5 ~ 17.0V

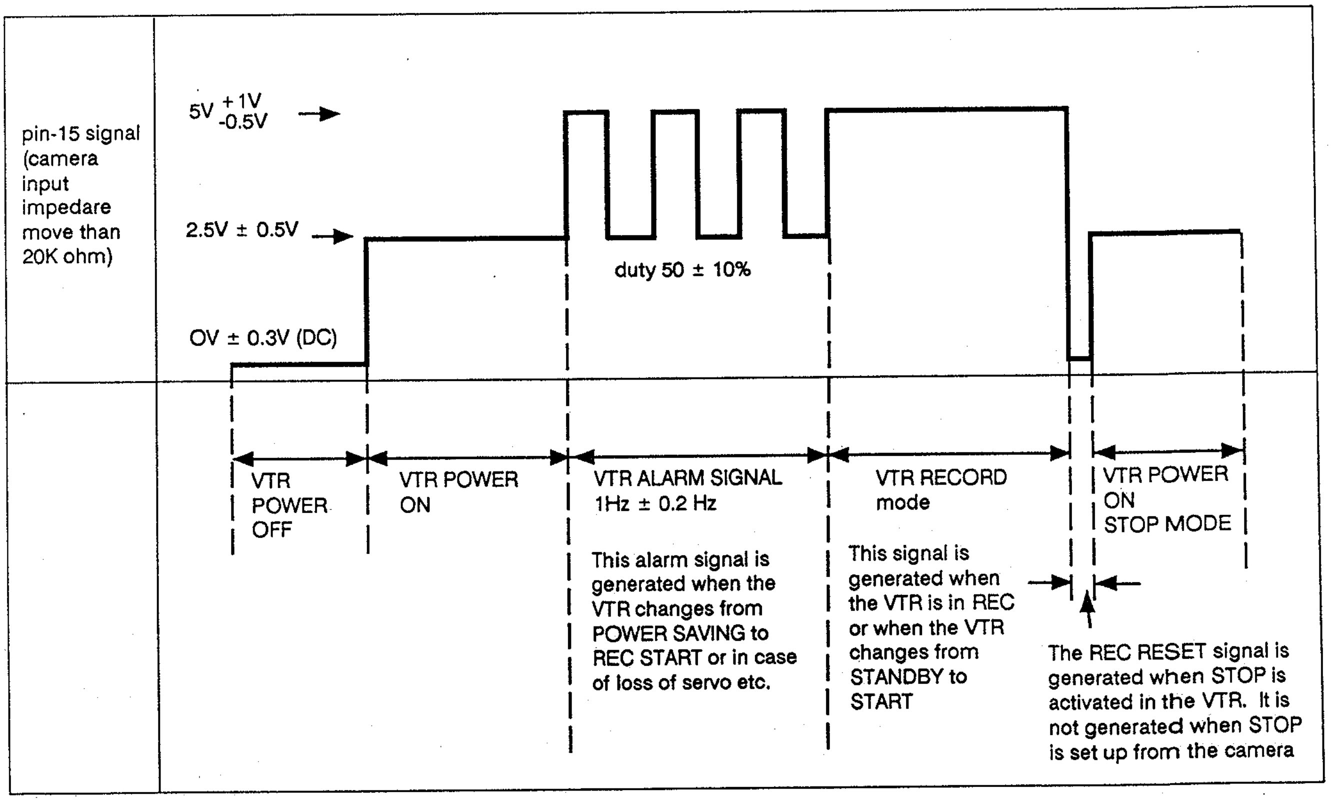
Note 1. Signal at Pin 13

Battery voltage detection and warning signal generating circuits are located within the VTR. This signals are supplied from the VTR to the camera to either blink or light the LED at the bottom of the viewfinder.

BATTERY TERMINAL ADAPTOR (VTR INTERNAL BATTERY)	DC12V ~ 11.1V	DC11.1V ~ 10.8V	PIN 10 TURNS HIGH AT DC 10.8V, 10.6V DC or below the VTR Internal Power is cut off so that the Battery Power is sent to Pin 13.
PIN 13 OUTPUT FROM VTR	 OV	1Hz ± 0.2Hz duty 50 ± 10%	DC2 ~ 3V across 300 ohm
LED IN VIEWFINDER	NEITHER BLINKS NOR LIGHTS	BLINKS AT 1Hz	LIGHTS

Note 2. Signal at Pin 15

When the VTR is ON the input to the camera at pin 15 is 2.5V DC. In VTR record mode the voltage is 5V DC. When servo is not applied or if alarm signals are 1Hz signal (2.5 Vp-p with 2.5V DC as reference) is sent to the camera. At the tape end when the VTR enters Stop mode or when setting up the Stop mode from the VTR, OV DC is generated from 10 msec to 100 msec (called REC RESET). After REC RESET the signal level returns to 2.5V DC.


pin-15 signal (camera input impedare move than 20K ohm)
5V +1V -0.5V
2.5V ± 0.5V
OV ± 0.3V (DC)
duty 50 ± 10%
VTR POWER OFF
VTR POWER ON
VTR ALARM SIGNAL 1Hz ± 0.2 Hz
This alarm signal is generated when the VTR changes from POWER SAVING to REC START or in case of loss of servo etc.
VTR RECORD mode
This signal is generated when the VTR is in REC or when the VTR changes from STANDBY to START
VTR POWER ON STOP MODE
The REC RESET signal is generated when STOP is activated in the VTR. It is not generated when STOP is set up from the camera

2-3-2. Connector

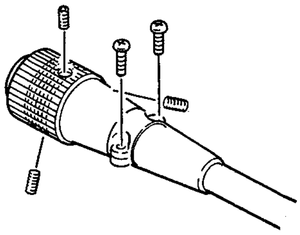
When cables with connectors are set to the respective connectors on the connector panel during installation or service, the specified or equivalent connectors with cables, or the specified cable assemblies should be used, these are listed as follows;

Connector function	Parts No, and name of connector with cable
TEST OUT (BNC)	1-560-069-11 PLUG, BNC or UGC-0.5 cable assembly (Cable length 1.5m, optional)
VF (20P, FEMALE)	1-558-609-11 PLUG, 20P, MALE
LENS (12P, FEMALE)	1-562-356-11 PLUG, 12P, MALE
REMOTE (6P, MALE)	1-557-406-11 REMOTE CONTROL CABLE (Cable length 10m)
50-PIN CONNECTOR (50P, MALE)	1-562-083-00 PLUG, 50P, FEMALE (Contained within CA-3A, CA-50, and BVV-5)

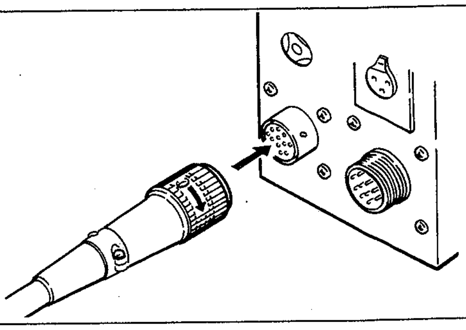
2-3-3. Removal of the CCZ, CCZQ connectors

CCZ, CCZQ Connectors (Removal of the connector)

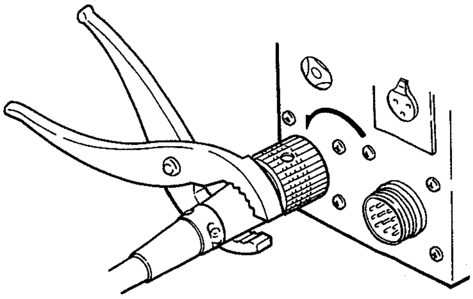
Step 1.
Remove the three hexagonal setscrews and the two setscrews.



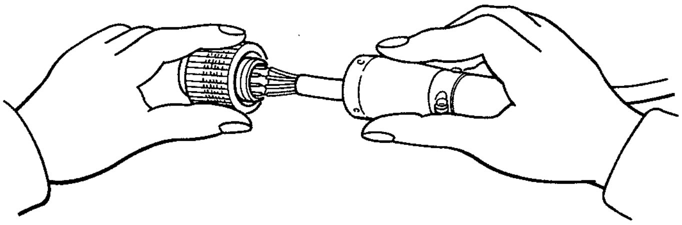
Step 2.
Fix the CCZ connector at the camera or VTR connector.



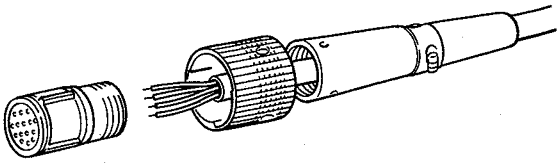
Step 3.
Rotate the CCZ connector counterclockwise by the plier and loosen it.



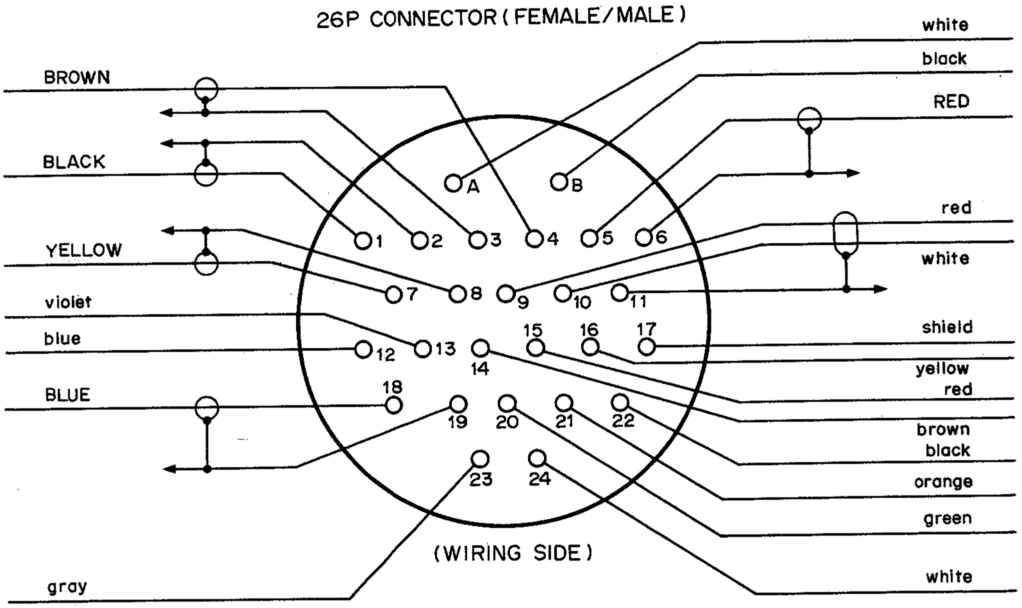
Step 4.
It can be removed by hand and unsolder.



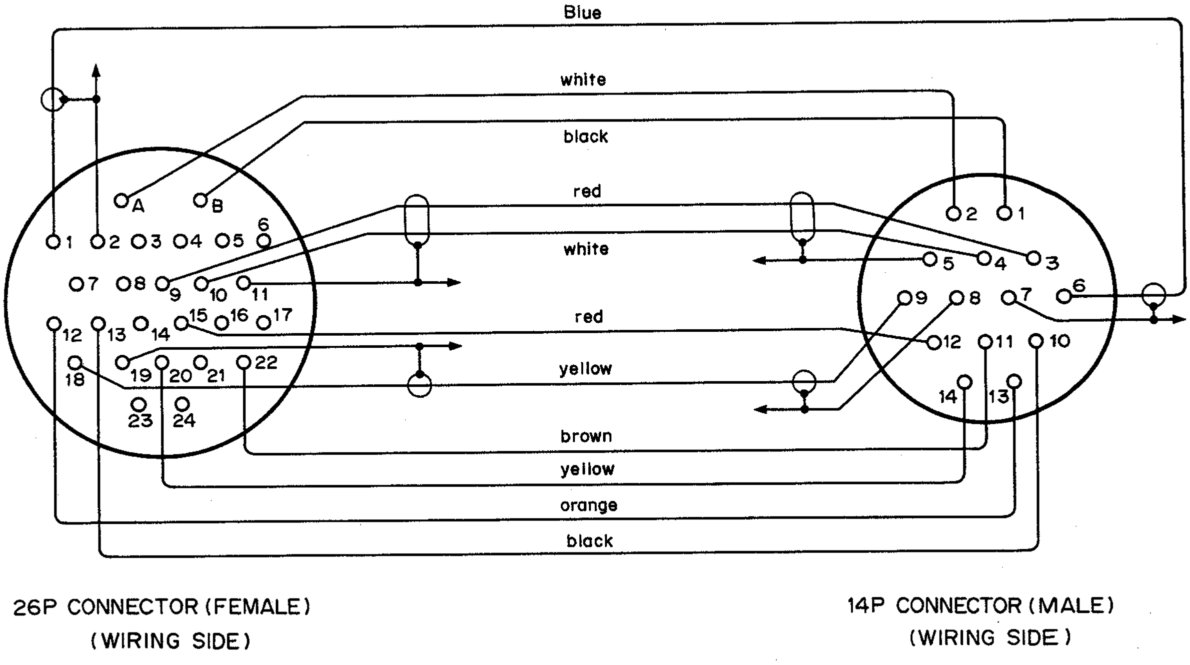
Step 5.
It can be broken up as shown in Figure.



CCZ cable (wiring diagram)


26P CONNECTOR (FEMALE/MALE)
(WIRING SIDE)
BROWN
BLACK
YELLOW
violet
blue
BLUE
gray
white
black
RED
red
white
shield
yellow
red
brown
black
orange
green
white
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CCZQ cable (wiring diagram)


Blue
white
black
red
white
red
yellow
brown
yellow
orange
black
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
2
1
5
4
3
9
8
7
6
12
11
10
14
13
26P CONNECTOR (FEMALE)
(WIRING SIDE)
14P CONNECTOR (MALE)
(WIRING SIDE)

2-4. POWER SUPPLY

Power sources DC +10.6V to +7V

1. DC voltage is supplied from the camera control unit CCU-350 or VTR via CCW-B cable.
2. DC voltage supplied from the AC adaptor AC-500 or DC battery DC-300/310 via EXT DC IN terminal.

2-5. OPERATIONAL ACCESSORIES

Camera cable	CCZ - 2 (2m) CCZ - 10 (10m)

Used for connecting the CA-50/50P and BVV-1/1PS/1A/APS/5/5PS VTR.

Camera cable	CCZ-2 (2m) CCZQ-10 (10m)

Used for connecting the CA-50/50P and portable VTR (BVU-110/110PS/150/150PS, BVH-500, etc.).

Camera cable	CCW - B25 (25m) CCW - B50 (50m) CCW - B100 (100m)

Used for connecting the CA-50/50P and CCU-350/350P.

Color video camera	BVP-50/50P
Camera control unit	CCU-350/350P
Battery case DC-300	(For battery BP-90)
Battery case DC-210	(For battery BP-90)
Battery case DC-310	(For battery NP-1A)

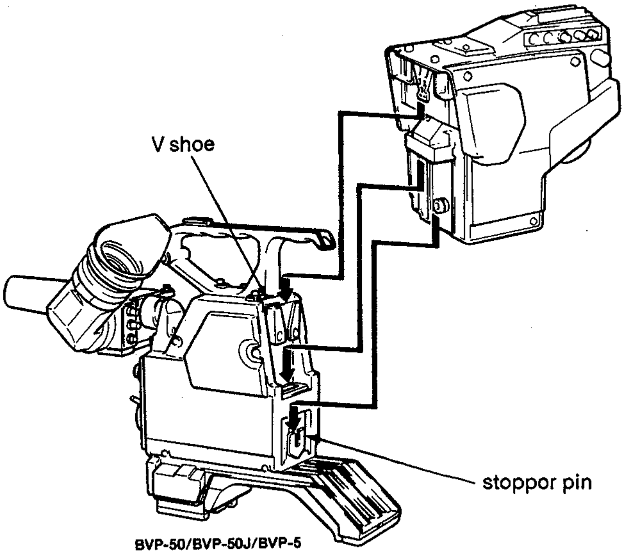
2-6. OPERATING CONDITIONS

Operating temperature	–20°C to +45°C
Storage temperature	–20°C to +60°C
Humidity	Non condense.

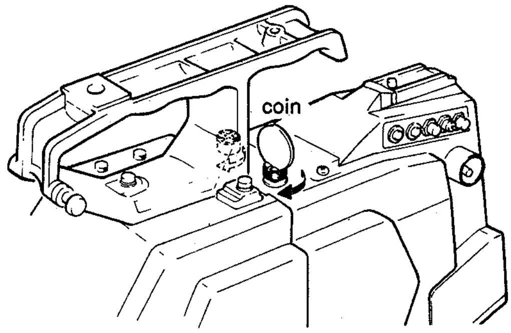
2-7. SET-UP

2-7-1. Set up with the BVP-50/50P camera.

1. Attach the CA-50/50P to the camera.


V shoe
stoppor pin
BVP-50/BVP-50J/BVP-5

2. Tighten the two screws by using a coin securely.



2-7-2. Switches Setting on the Board

[IF-192 board]

- S1

1	N↔P	Set this switch to "N" for NTSC and to "P" for PAL model.
2	BAUDS RATE	Selects the data transfer speed.
3	GAIN	Selects a GAIN UP indication. This is set to "0/9/18dB" at the factory.
4	NORM↔EXT	Set this switch to "EXT" only when the board kit BKP-501 is used. Normally set to "NORM".

[AU-107 board]

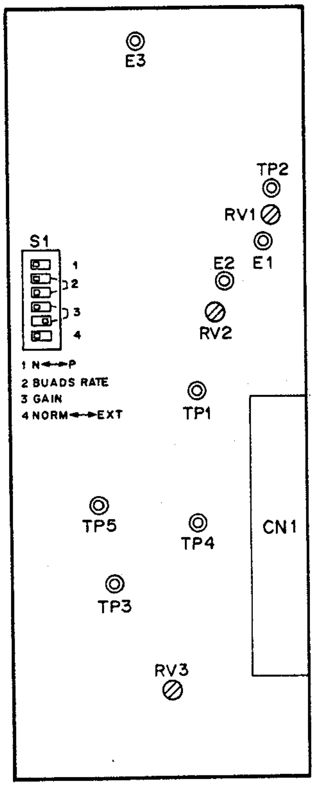
- S1 (MIC POWER ON/OFF)

When turning on the S1 switch, the dc voltage (+48V) is supplied from the MIC IN connector.

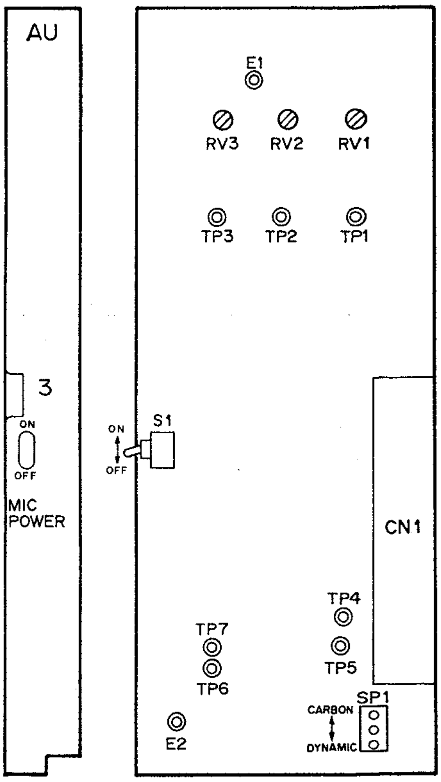
- SP1 (CARBON/DYNAMIC)

This is the connector for selecting the input impedance and gain of the intercom amplifier.

Both carbon-type and dynamic-type microphones can be used for intercommunication.


E3
TP2
RV1
S1
1
2
3
4
E2
E1
RV2
1 N↔P
2 BUADS RATE
3 GAIN
4 NORM↔EXT
TP1
TP5
TP4
CN1
TP3
RV3

IF-192 BOARD (COMPONENT SIDE)


AU
E1
RV3
RV2
RV1
TP3
TP2
TP1
3
ON
OFF
MIC POWER
ON
OFF
S1
CN1
TP4
TP7
TP5
TP6
SP1
CARBON
DYNAMIC
E2

AU-107 BOARD (COMPONENT SIDE)

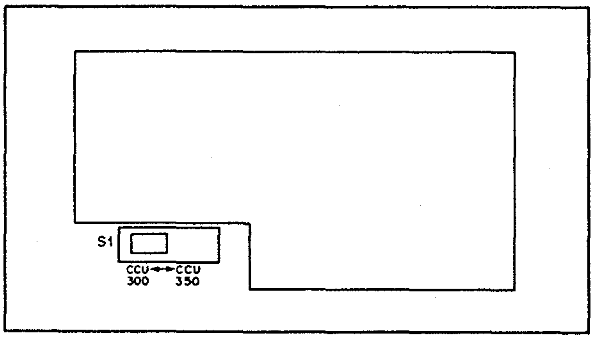
[AU-108 board]

- S1 (GAIN) switch

Serial No. 10121 and higher (UC) 10126 and higher (EK)

MIC line transfer signal of CCU-350 differs from that of CCU-300.
To adjust their levels, this switch selects the gain.
Each MIC line level is as follows;

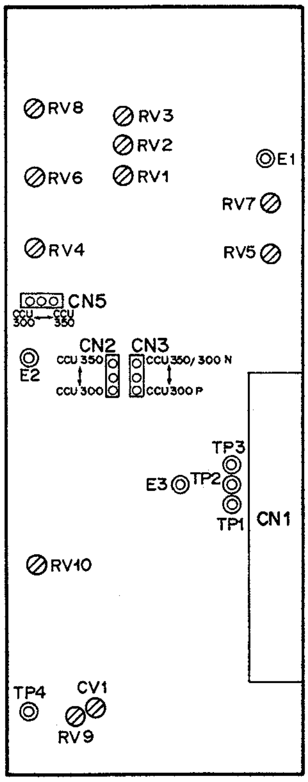
CCU-350 : –20 dB
CCU-300 : –30 dB



AU – 108 BOARD (COMPONENT SIDE)

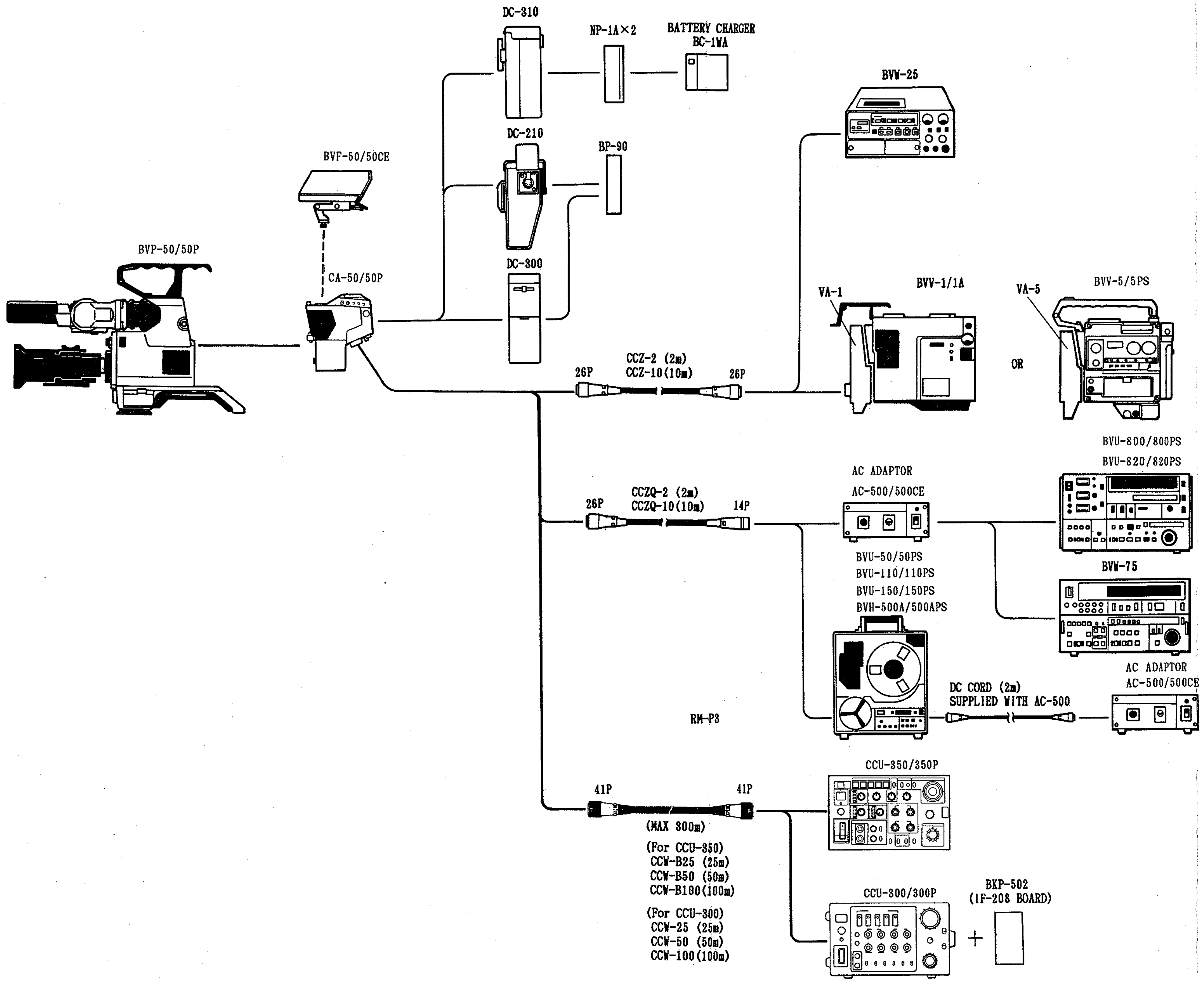
2-8. WHEN USING THE CCU-300/300P

The Sony CA-50/50P camera adaptor is available for connecting the Betacam camera BVP-50/50P and the CCU-350/350P camera control unit.
When changing the connection of the connector CN2, CN3, and CN5 on the IF-191 board, the CA-50/50P camera adaptor is able to connect the CCU-300/300P camera control unit. Moreover, replace the IF-192 board with the IF-208 board in the board kit BKP-502 (optional accessory).

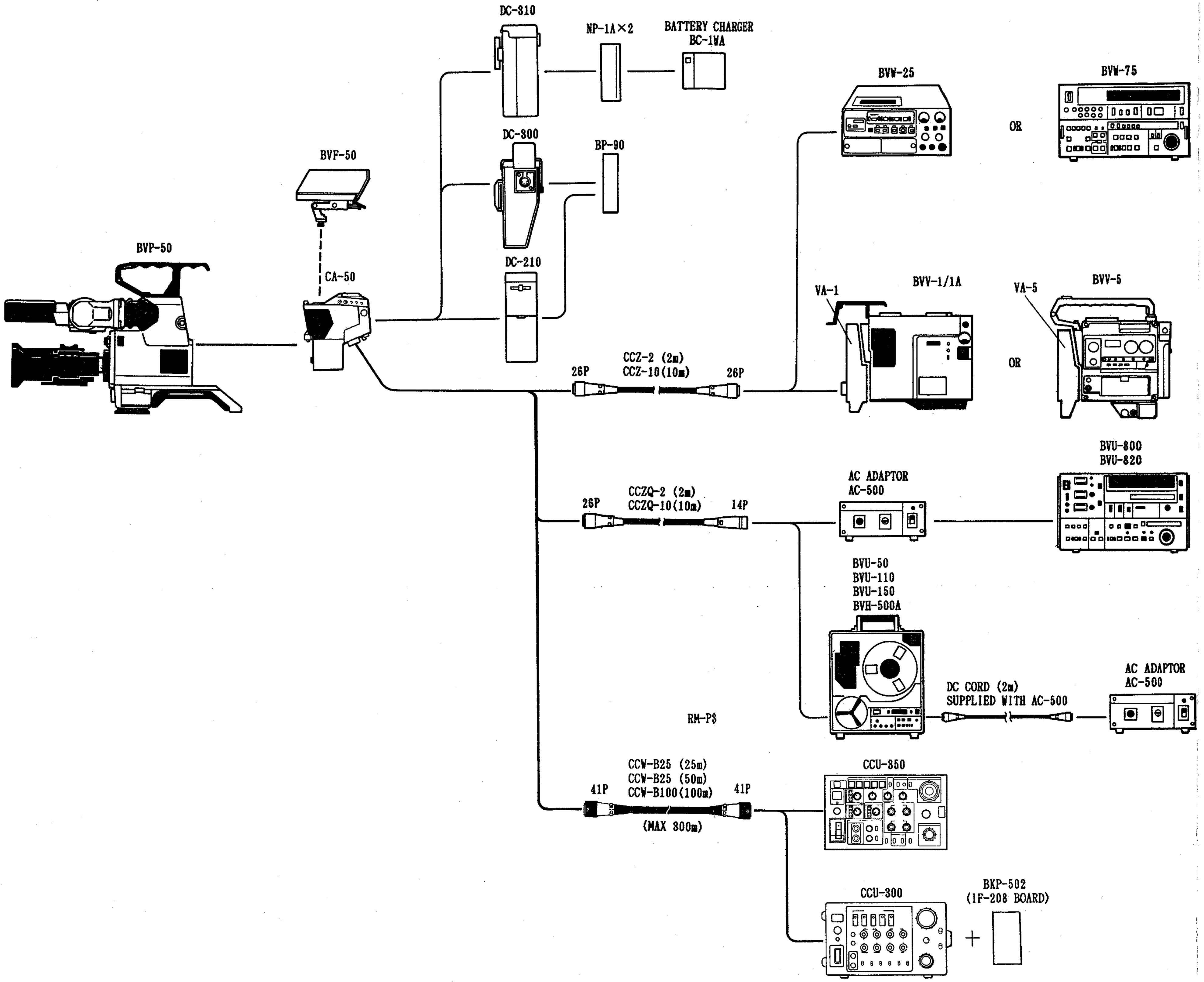

RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
CCU 300
CCU 350
CN2
CN3
E2
CCU 350
CCU 300
CCU 350/ 300 N
CCU 300 P
TP3
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

2-9. SYSTEM CONFIGURATION


DC-310
NP-1A×2
BATTERY CHARGER
BC-1WA
DC-210
BP-90
DC-300
BVF-50/50CE
BVP-50/50P
CA-50/50P
BVW-25
VA-1
BVV-1/1A
VA-5
BVV-5/5PS
OR
26P
CCZ-2 (2m)
CCZ-10(10m)
26P
BVU-800/800PS
BVU-820/820PS
AC ADAPTOR
AC-500/500CE
26P
CCZQ-2 (2m)
CCZQ-10(10m)
14P
BVU-50/50PS
BVU-110/110PS
BVU-150/150PS
BVH-500A/500APS
BVW-75
AC ADAPTOR
AC-500/500CE
DC CORD (2m)
SUPPLIED WITH AC-500
RM-P3
CCU-350/350P
41P
41P
(MAX 300m)
(For CCU-350)
CCW-B25 (25m)
CCW-B50 (50m)
CCW-B100(100m)
(For CCU-300)
CCW-25 (25m)
CCW-50 (50m)
CCW-100(100m)
CCU-300/300P
BKP-502
(1F-208 BOARD)
+

2-9. SYSTEM CONFIGURATION


DC-310
NP-1A×2
BATTERY CHARGER
BC-1WA
BVW-25
BVW-75
OR
DC-300
BP-90
BVF-50
BVP-50
CA-50
DC-210
VA-1
BVV-1/1A
VA-5
BVV-5
OR
CCZ-2 (2m)
CCZ-10(10m)
26P
26P
BVU-800
BVU-820
AC ADAPTOR
AC-500
CCZQ-2 (2m)
CCZQ-10(10m)
26P
14P
BVU-50
BVU-110
BVU-150
BVH-500A
AC ADAPTOR
AC-500
DC CORD (2m)
SUPPLIED WITH AC-500
RM-P3
CCU-350
CCW-B25 (25m)
CCW-B25 (50m)
CCW-B100(100m)
41P
41P
(MAX 300m)
CCU-300
BKP-502
(1F-208 BOARD)
+

SECTION 3
SERVICE INFORMATION

3-1. CABINET REMOVAL

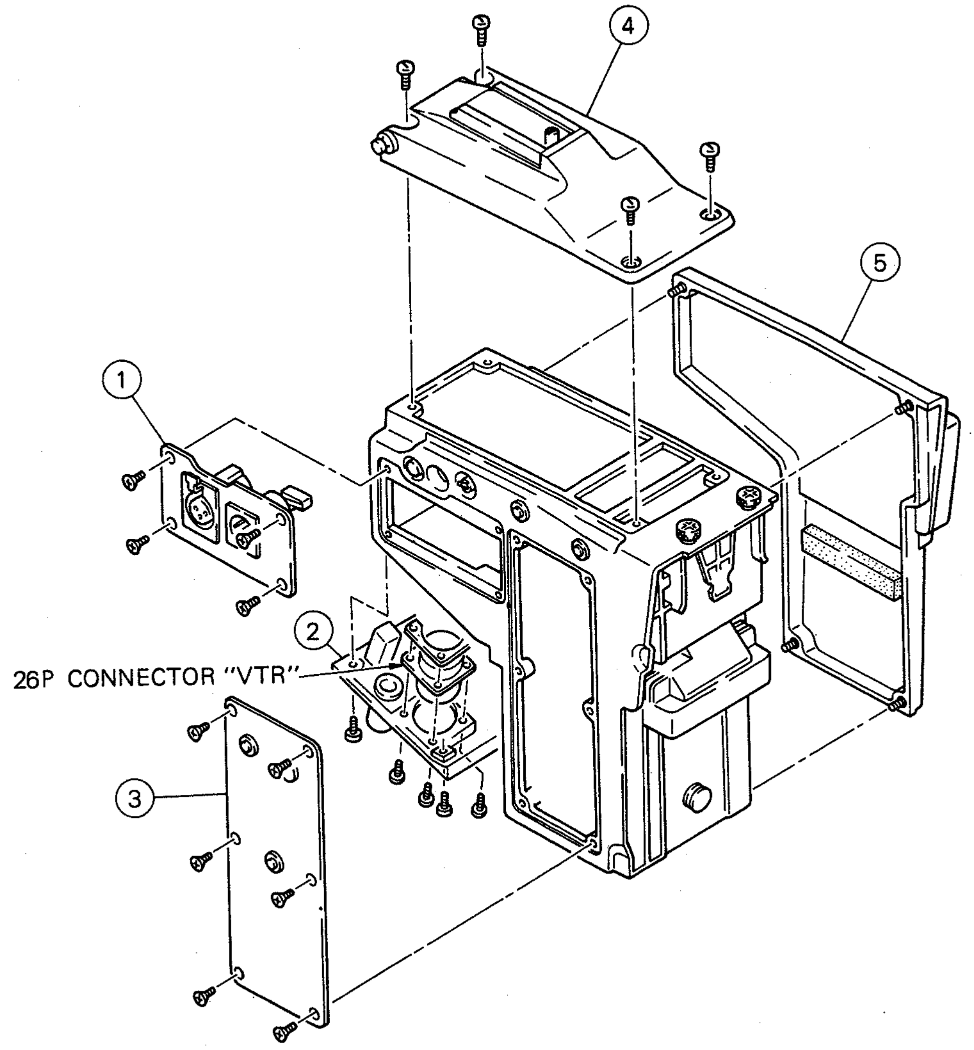
[1] XLR plate removal
Remove the four screws (+RK3 × 6) fixing the XLR plate, and remove the XLR plate.

[2] Connector bracket removal
- Remove the four screws (+B3 × 8) fixing the 26-pin connector (VTR).
- Remove the four screws (+B3 × 8) fixing the connect bracket, and remove it.

[3] Left side cover removal
Remove the six screws (+RK3 × 6) fixing the left side cover, and remove it.

[4] Upper cover removal
Remove the four screws (+P4 × 10) fixing the upper cover, and remove it.

[5] Right side cover removal
Remove the four screws (M4 × 8) fixing the right side cover, and remove it.



3-2. SERVICING PRECAUTION

3-2-1. Precautions on Replacement of CAMERA connector (50p connector)

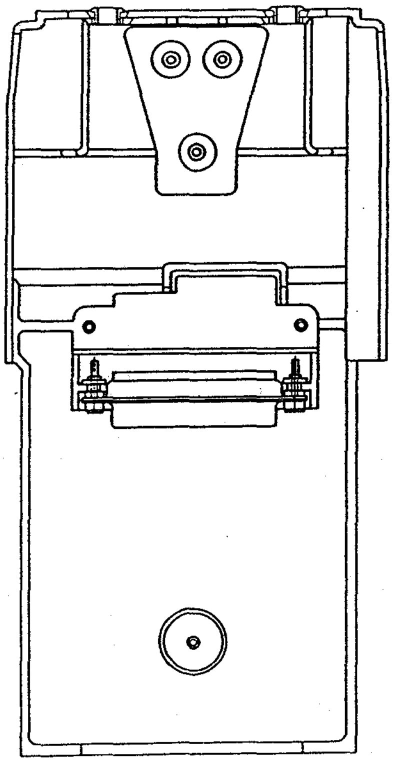
The VTR connector (50 pin connector) is attached using a high-precision special tool (CV positioning) so as to keep the accurate positioning relation with camera mount (C shoe) and to dock with any of BVP-50/50P. Avoid to loosen or remove the screws for 50P connector, C SHOE and stopper (in all, eight screws). It is necessary to adjust using a jig, when the above parts are replaced. For replacement of the CAMERA connector (50 pin connector), contact your Sony dealer.

3-2-2. PROM IC

IC9 on the IF-192 board is PROM IC.
This PROM IC has a suffix to its original designation as follows.

IC9	HN27C64G - CA-50-1.03

Never use an IC having no suffix to its original designation. (Its memory has not been programmed) PROM IC is attached to IC8 via socket.



3-2-3. Precaution on Replacement Parts

1. **Safety Related on Components Warning**
   Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. **Standardization of Parts**
   Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "accomodating the improved parts and/or engineering change" or "standardization of genuine parts". This manual's exploded view and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present". Regarding engineering parts and diagrams changes in our engineering department, refer to SECTION 9. CHANGE INFORMATION.

3. **Stocked of Parts**
   The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "0" will be processed, but allow for additional delivery time.

4. **Units of Capacitors, Inductors, and Resistors**
   The following units are omitted in the shematic diagrams, exploded views, and electrical parts list unless otherwise specified;
   Capacitor ; μF
   Inductor ; μH
   Resistor ; Ω

3-3. TOOLS AND JIGS

Part No.	Description
A-7520-253-A	Extension board "EX-108"

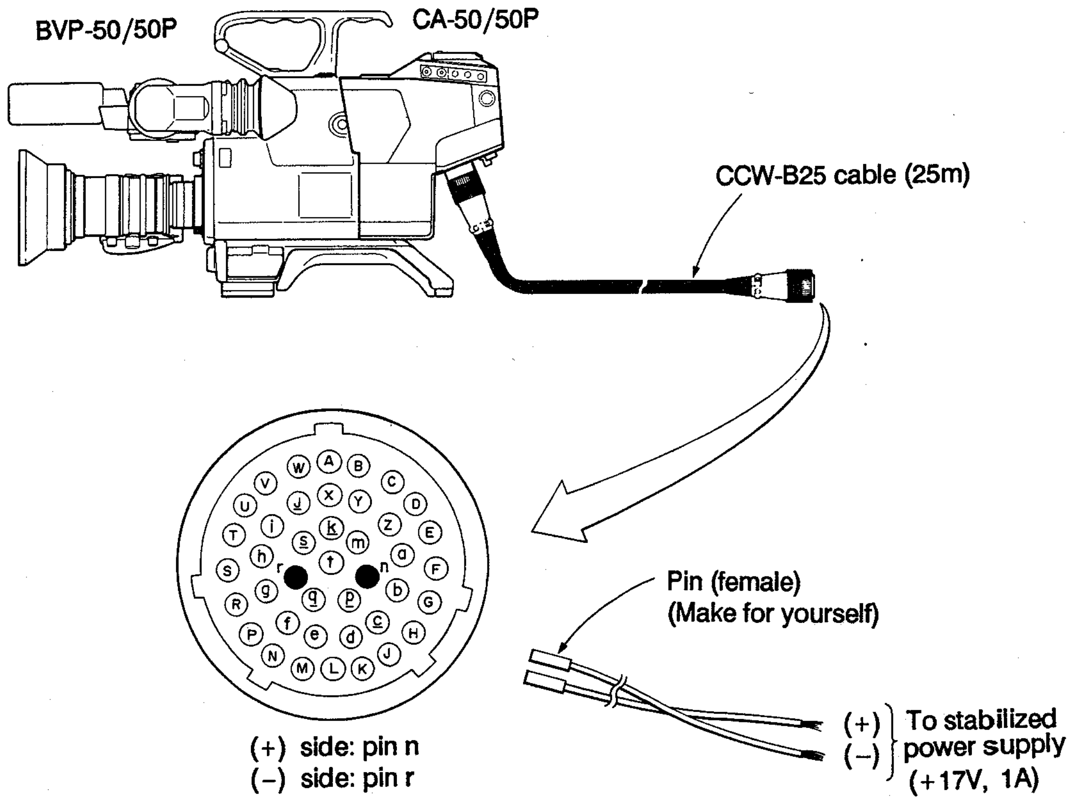
SECTION 4
ALIGNMENT

4-1. Preparation

Step 1. Adjustment Fixtures and Equipment

- Oscilloscope
- Stabilized power supply
- Camera : BVP-50/50P (Adjustment of BVP-50/50P should be completed)
- CCW cable : CCW-B25 (cable length 25m)
  CCW-B50 (cable length 50m)
- Extension board : EX-108 board (supplied by BVP-50/50P camera)
- Test signal generator (signal: Color bar signal, Ramp Linearity Test signal, SWEEP signal)

Step 2. Connection
(except BATT IND Adjustment and Voltage Protection Adjustment)


BVP-50/50P
CA-50/50P
CCW-B25 cable (25m)
r
n
Pin (female)
(Make for yourself)
(+) side: pin n
(−) side: pin r
(+)
(−)
To stabilized power supply (+17V, 1A)

4-2. OVERALL ADJUSTMENT

Step 1. BATT IND Adjustment

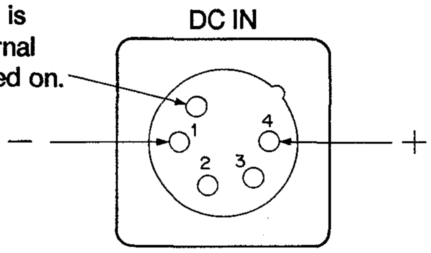
- Setting

Equipment : stabilized power supply	Board extension : IF-192 board

- Preparation

Connect a positive side of the stabilized power supply to pin 4 of DC IN connector on CA-50/50P, and a negative side to pin 1.

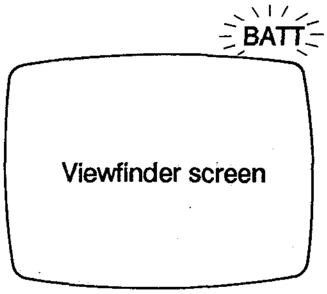
When this pin is pressed, internal switch is turned on.

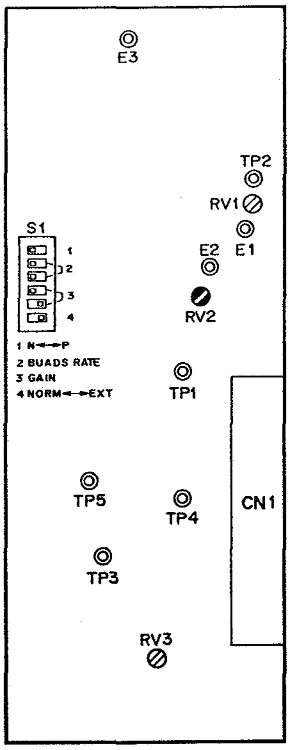


When the power is supplied without connecting XLR connector, please turn on the internal switch on DC IN connector. If this switch is off, the power does not be supplied.

- Adjustment procedures

Test point : BATT indicator in viewfinder of camera
Adj. point : ⊘ RV2 (BATT ALARM)/IF-192 board
Adjust : Gradually reduce the voltage of stabilized power supply from +12V. Adjust ⊘ RV2 on IF-192 board so that BATT indicator blinks when the voltage is less than +11.2 ± 0.05V.


BATT
Viewfinder screen


E3
TP2
RV1
E1
E2
S1
1
2
3
4
1 N↔P
2 BUADS RATE
3 GAIN
4 NORM↔EXT
RV2
TP1
TP5
TP4
CN1
TP3
RV3

IF-192 BOARD(COMPONENT SIDE)

Step 2. Voltage Protection Adjustment

- Note

- When this adjustment is performed, any other equipments should not connected to CA-50/50P. Disconnect the CCW cable, too.
- Output current from the stabilized power supply should be restricted to less than 500 mA.
- After this adjustment is completed, set the POWER switch of CA-50/50P to OFF.

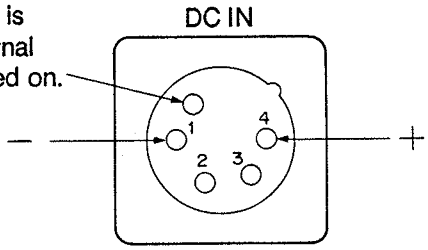
- Setting

Equipment : stabilized power supply	Board extension : IF-192 board

- Preparation

Connect a positive side of the stabilized power supply to pin 4 of DC IN connector on CA-50/50P, and a negative side to pin 1.

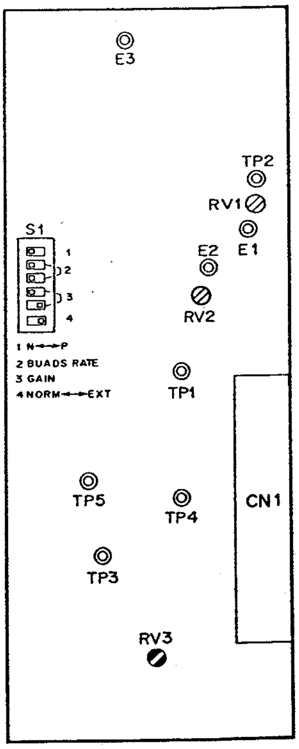
When this pin is pressed, internal switch is turned on.



When the power is supplied without connecting XLR connector, please turn on the internal switch on DC IN connector. If this switch is off, the power does not be supplied.

- Adjustment procedures

Voltage of stabilized power supply : DC + 21V
Adj. point : ⊘ RV3/IF-192 board
Adjustment : Turn ⊘ RV3 on the IF-192 board slowly, and stops it just when to output current from the stabilized power supply extremely increases.



IF-192 BOARD (COMPONENT SIDE)

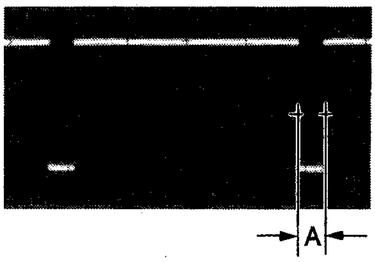
Step 3. H Reset Pulse Width Adjustment

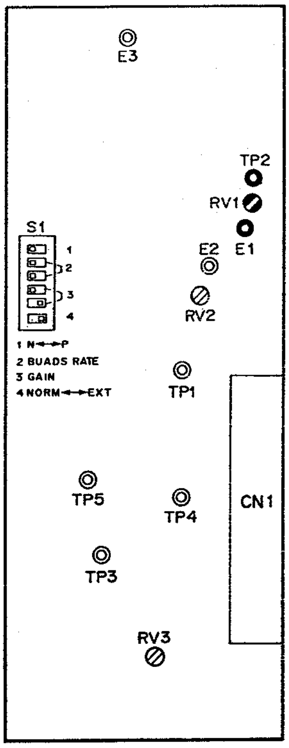
- Setting

Equipment : Oscilloscope	Board extension : IF-192 board

- Adjustment procedures

Test point : TP2 (GND: E1)/IF-192 board
Trigger : TP5/extension board
Adj. point : ⊘ RV1/IF-192 board
Spec. : A = 6.4 ± 0.1 μs




E3
TP2
RV1
E1
S1
1
2
3
4
E2
RV2
1 N←→P
2 BUADS RATE
3 GAIN
4 NORM←→EXT
TP1
TP5
TP4
CN1
TP3
RV3

IF-192 BOARD (COMPONENT SIDE)

Step 4. VTR Y Adjustment

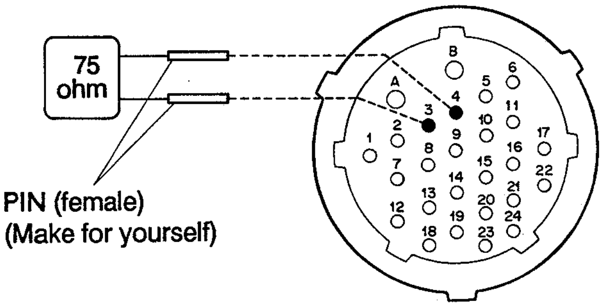
- Setting

Equipment : Oscilloscope	Board extension : AU-107 board

- Preparation

1. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
2. Terminate pins 3 and 4 of VTR connector of CA-50/50P at 75 ohm.

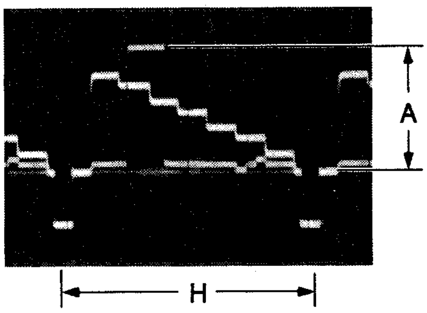
VTR connector
(CA-50/50P)


75 ohm
PIN (female)
(Make for yourself)
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

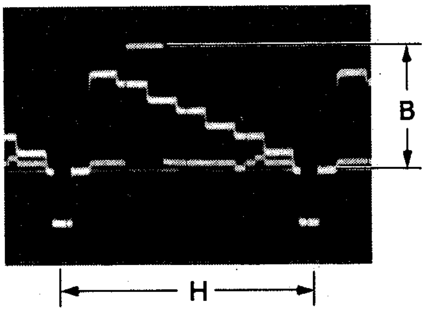
- Adjustment procedures

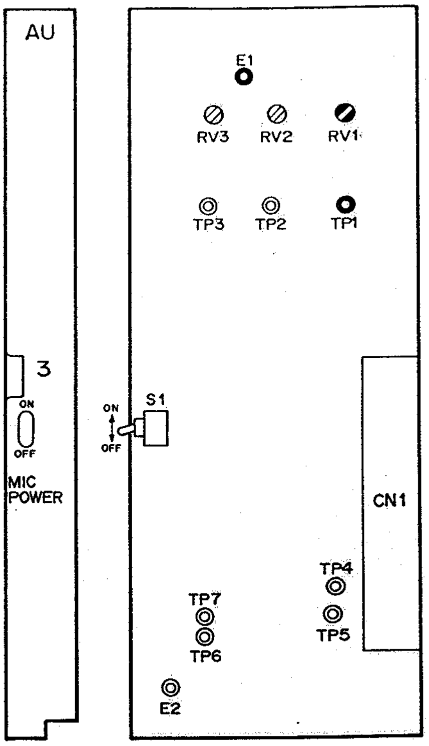
Adjust :

1. Measure the video level "A" of TP36 (GND: GND terminal) on the extension board.
   (PAL system: "A" is the white level.)



2. Test point : TP1 (GND: E1)/AU-107 board
   Adj. point : ⊘ RV1/AU-107 board
   Spec. : B = A ± 0.01V
   (PAL system: "B" is the white level.)




AU
E1
RV3
RV2
RV1
TP3
TP2
TP1
3
ON
OFF
MIC POWER
ON
OFF
S1
CN1
TP4
TP7
TP5
TP6
E2

AU-107 BOARD(COMPONENT SIDE)

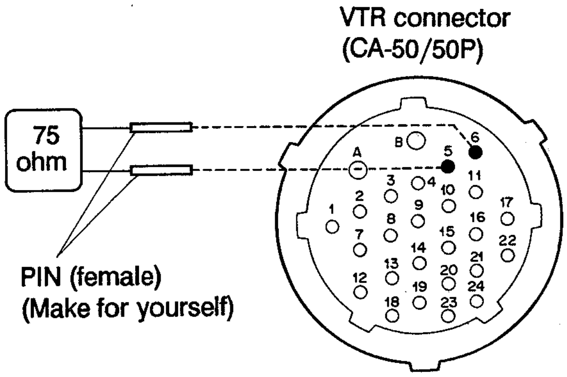
Step 5. VTR R-Y Adjustment

- Setting

Equipment : Oscilloscope	Board extension : AU-107 board

- Preparation

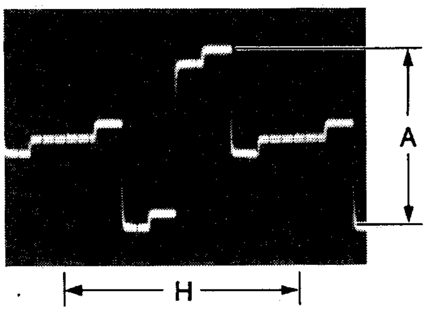
1. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
2. Terminate pins 5 and 6 of VTR connector of CA-50/50P at 75 ohm.


VTR connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

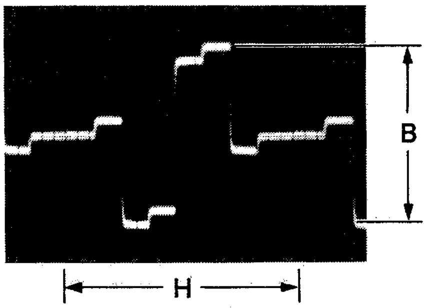
- Adjustment procedures

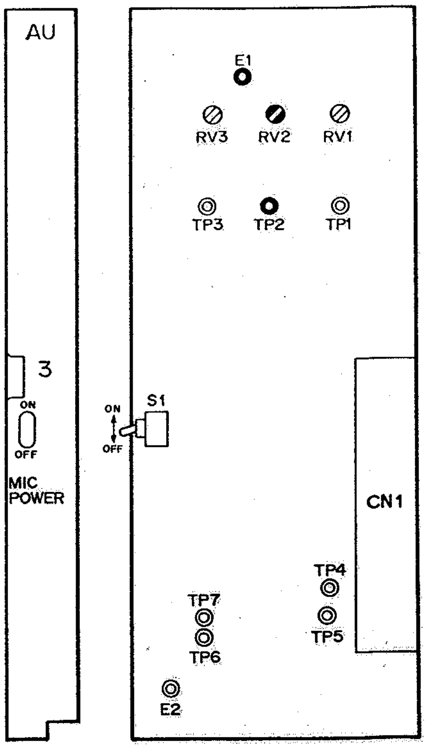
Adjust :

1. Measure the video level "A" of TP35 (GND: GND terminal) on the extension board.



2. Test point : TP2 (GND: E1)/AU-107 board
   Adj. point : ⊘ RV2/AU-107 board
   Spec. : B = A ± 0.01V




AU
E1
RV3
RV2
RV1
TP3
TP2
TP1
3
ON
OFF
MIC POWER
ON
OFF
S1
CN1
TP4
TP7
TP5
TP6
E2

AU-107 BOARD(COMPONENT SIDE)

Step 6. VTR B-Y Adjustment

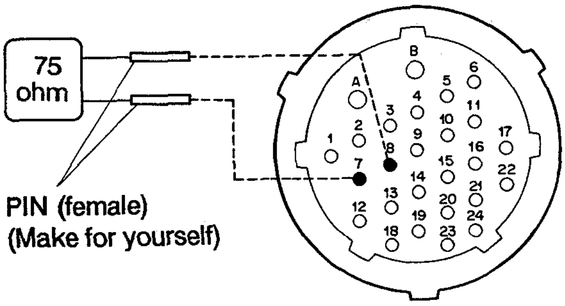
- Setting

Equipment : Oscilloscope	Board extension : AU-107 board

- Preparation

1. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
2. Terminate pins 7 and 8 of VTR connector of CA-50/50P at 75 ohm.

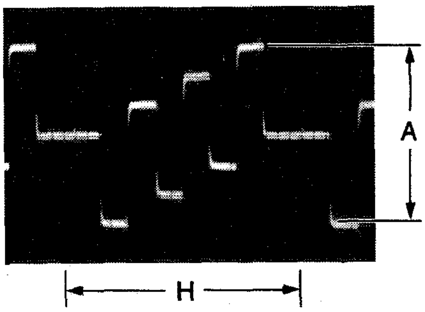
VTR connector
(CA-50/50P)


75 ohm
PIN (female)
(Make for yourself)
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

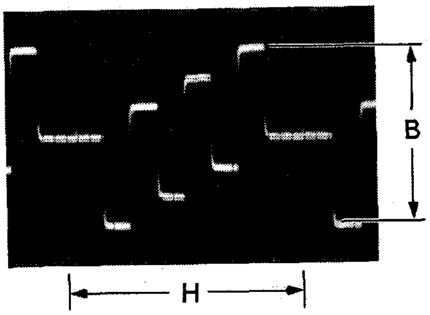
- Adjustment procedures

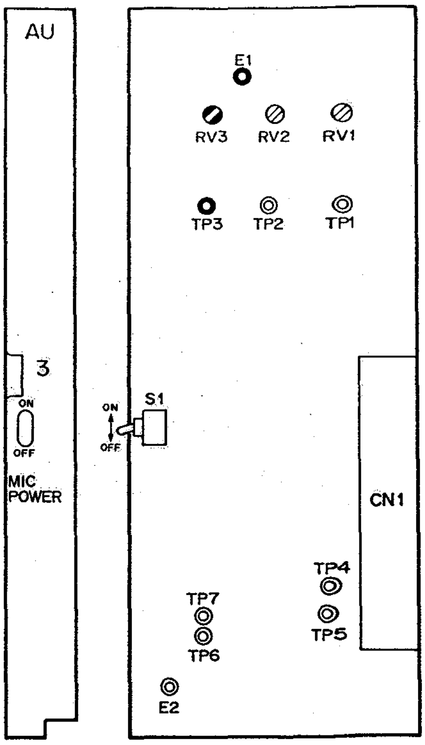
Adjust :

1. Measure the video level "A" of TP34 (GND: GND terminal) on the extension board.



2. Test point : TP3 (GND:E1)/AU-107 board
   Adj. point : ⊘ RV3/AU-107 board
   Spec. : B = A ± 0.01V




AU
E1
RV3
RV2
RV1
TP3
TP2
TP1
3
ON
OFF
MIC POWER
ON
OFF
S1
CN1
TP4
TP5
TP7
TP6
E2

AU-107 BOARD(COMPONENT SIDE)

Step 7. CCU Y Gain Adjustment

- Note

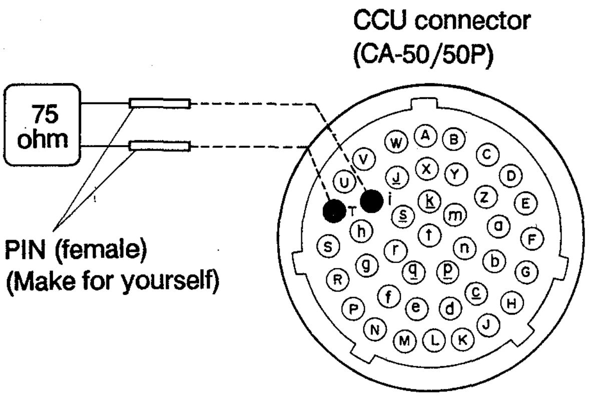
Be sure to complete Color bar adjustment of camera.
(Color bar adjustment; ⊘ RV7 (G BAR), ⊘RV6 (R BAR), ⊘RV8 (B BAR)/EN board)

- Setting

Equipment : Oscilloscope
Board extension : IF-191/191P board

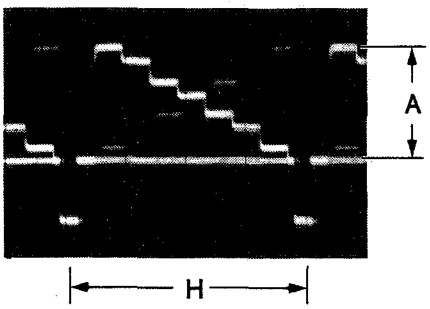
- Preparation

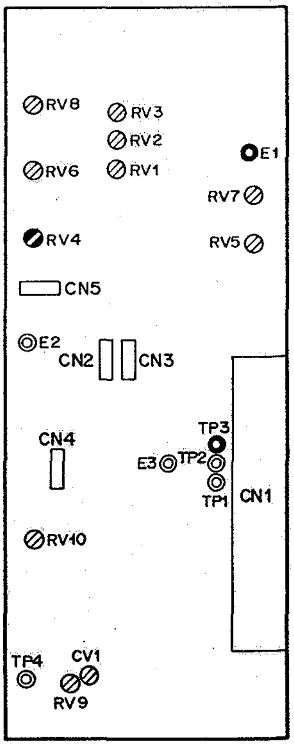
1. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
2. Terminate pins i and T of CCU connector of CA-50/50P at 75 ohm.


CCU connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
T
i
W A B C
V J X Y D
U k s m Z E
h t a F
S r n b
R g q p G
P f e d c H
N M L K J

- Adjustment procedures

Test point : TP3 (GND: E1) on IF-191/191P board
Adj. point : ⊘ RV4 on IF-191/191P board
Spec. : [For NTSC]
A = 525 ± 5mV
[For PAL]
White level is 700 ± 5 mV.




RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
TP3
CN4
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

Step 8. CCU R-Y Gain Adjustment

- Note

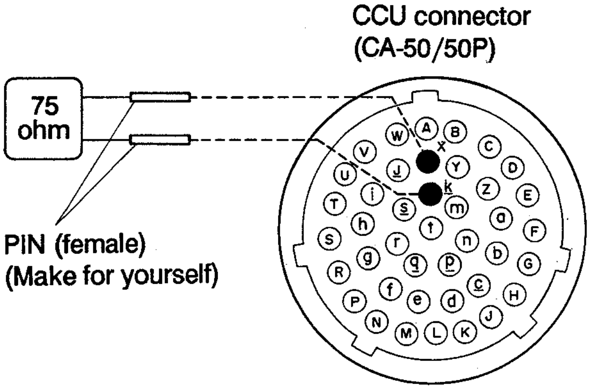
Be sure to complete Color bar adjustment of camera.
(Color bar adjustment; ⊘ RV7 (G BAR), ⊘ RV6 (R BAR), ⊘RV8 (B BAR)/EN board)

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

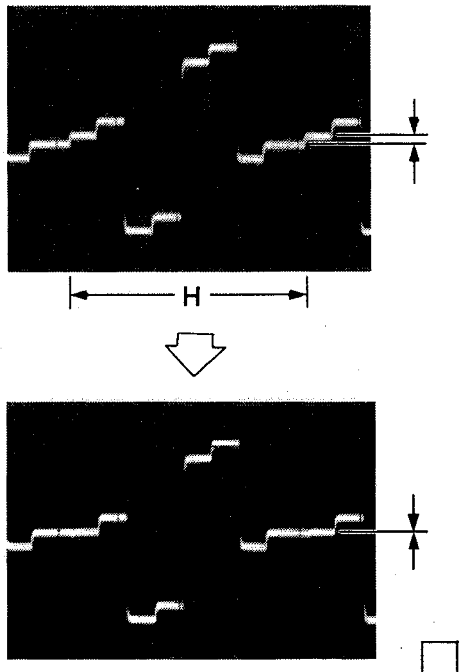
- Preparation

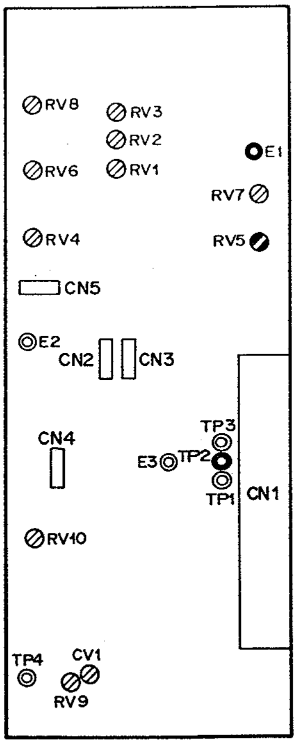
1. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
2. Terminate pins k and X of CCU connector of CA-50/50P at 75 ohm.


CCU connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
W A B C D E F G H J K L M N P R S T U V X Y Z
a b c d e f g h i j k m n p q r s t

- Adjustment procedures

1. Test point : TP2 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV5 on IF-191/191P board

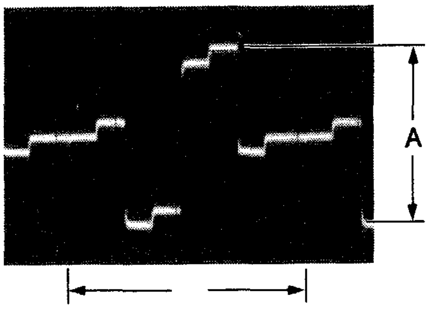


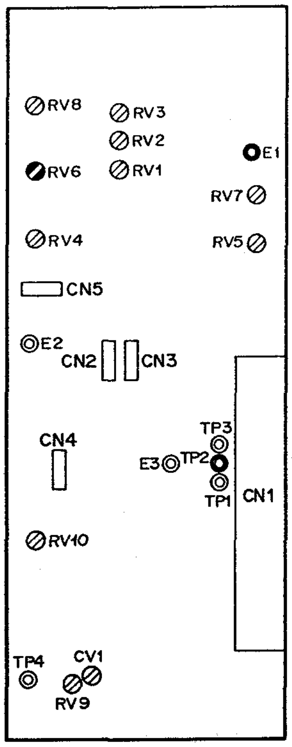

RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
CN4
TP3
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD(COMPONENT SIDE)

(Proceed to next page)

2. Test point : TP2 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV6 on IF-191/191P board
   Spec. : A = 525 ± 5 mV




RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
TP3
CN4
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

Step 9. CCU B-Y Gain Adjustment

- Note

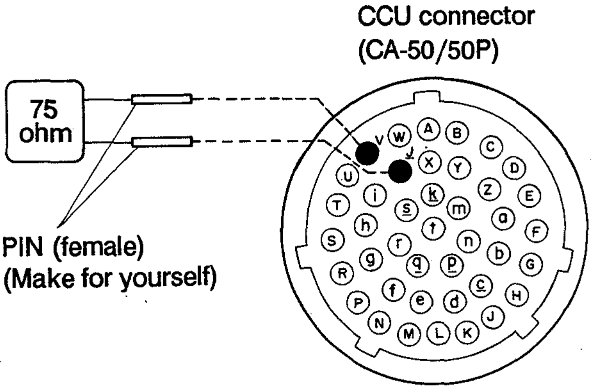
Be sure to complete Color bar adjustment of camera.
(Color bar adjustment; ⊘ RV7 (G BAR), ⊘ RV6 (R BAR), ⊘RV8 (B BAR)/EN board)

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

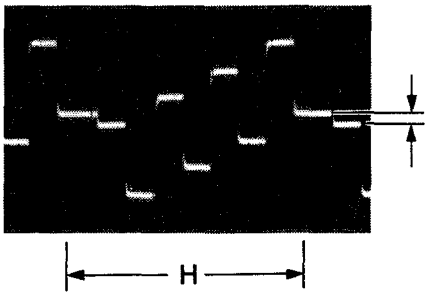
- Preparation

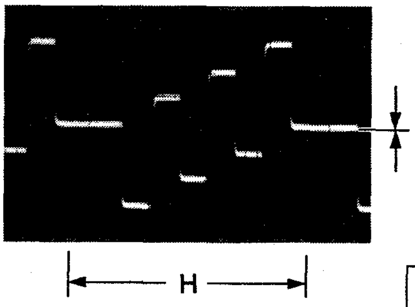
1. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
2. Terminate pins J and V of CCU connector of CA-50/50P at 75 ohm.


CCU connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
V
J

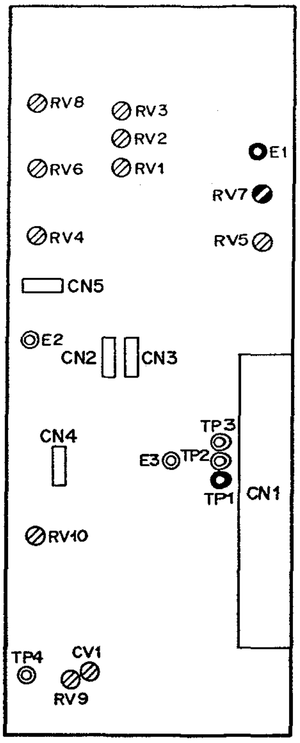
- Adjustment procedures

1. Test point : TP1 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV7 on IF-191/191P board



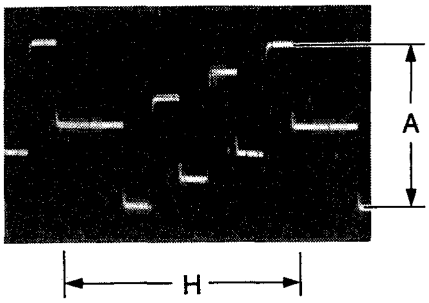


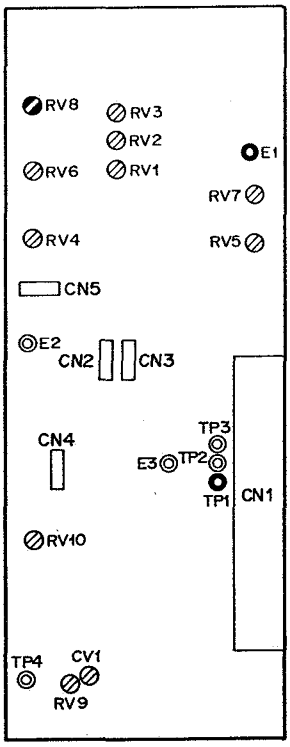
(Proceed to next page)


RV8
RV3
RV2
RV6
RV1
E1
RV7
RV4
RV5
CN5
E2
CN2
CN3
CN4
TP3
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD(COMPONENT SIDE)

2. Test point : TP1 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV8 on IF-191/191P board
   Spec. : A = 525 ± 5 mV




RV8
RV3
RV2
RV1
E1
RV6
RV7
RV4
RV5
CN5
E2
CN2
CN3
TP3
CN4
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

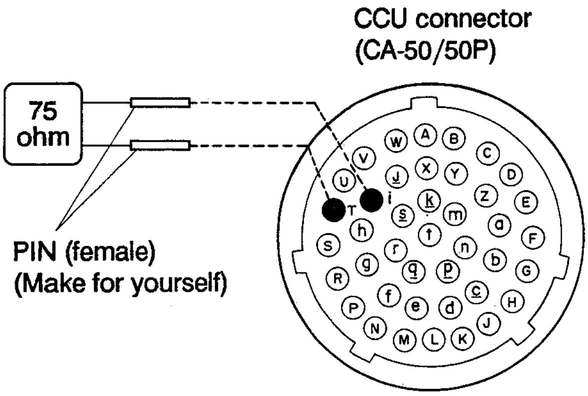
Step 10. CCU G Gain Adjustment

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

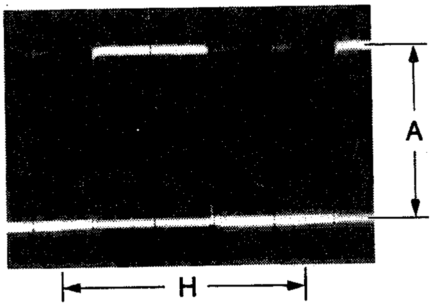
- Preparation

1. Short between TP34 and TP4 (+5V) on the extension board with a lead wire.
2. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
3. Terminate pins i and T of CCU conector of CA-50/50P at 75 ohm.


CCU connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
T
i

- Adjustment procedures

1. Measure the video level "A" of TP33 (GND: GND terminal) on the extension board.



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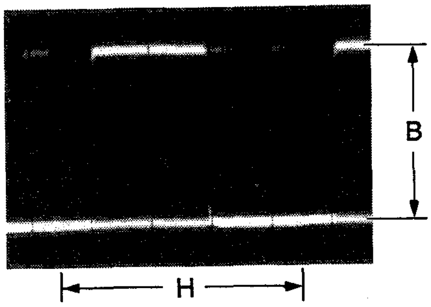
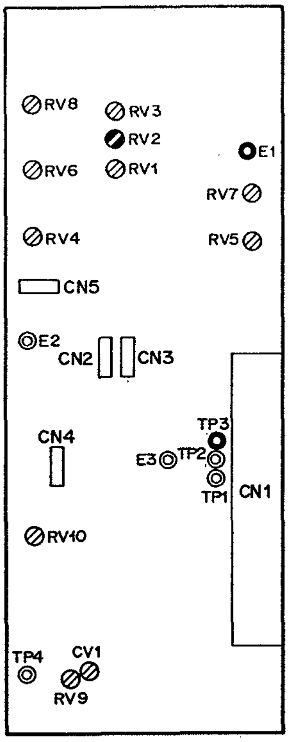
2. Test point : TP3 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV2 on IF-191/191P board
   Spec. : B = A ± 0.01V




RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
TP3
CN4
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

■ Note

After this adjustment is completed, open between TP34 and TP4 (+5V) on the extension board.

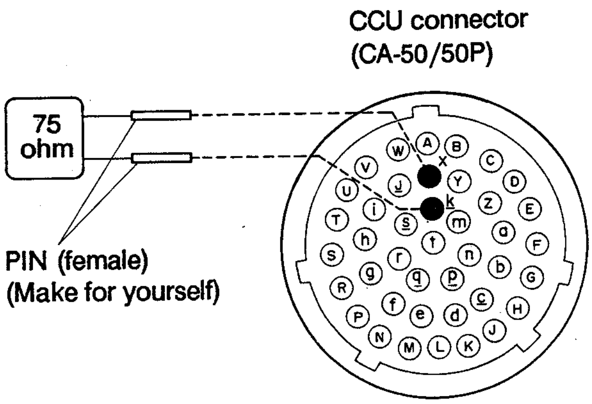
Step 11. CCU R Gain Adjustment

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

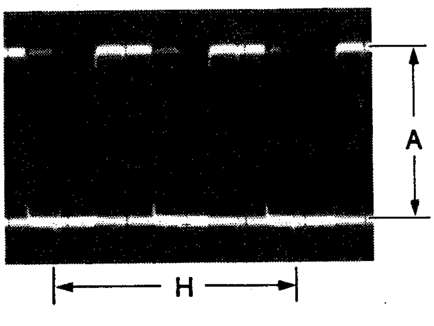
- Preparation

1. Short between TP34 and TP4 (+5V) on the extension board with a lead wire.
2. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
3. Terminate pins k and X of CCU connector of CA-50/50P at 75 ohm.


CCU connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
X
k
W A B
V C
U J Y D
T i s Z E
m a
h t F
S r n b
g q p G
R f c H
e d
P J
N M L K

- Adjustment procedures

1. Measure the video level "A" of TP35 (GND: GND terminal) on the extension board.



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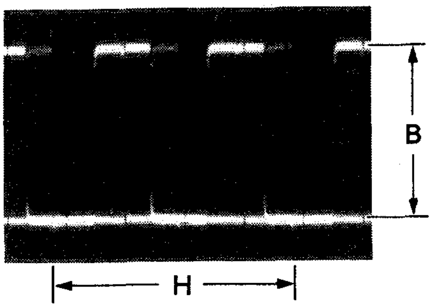
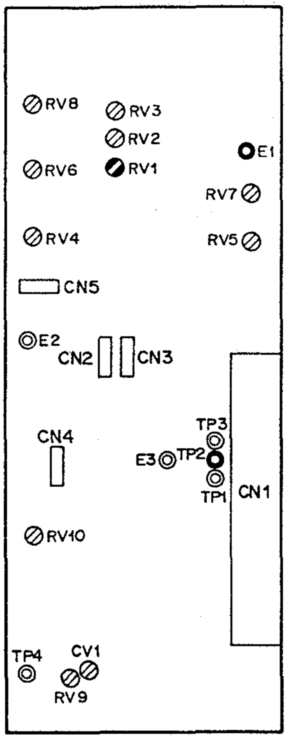
2. Test point : TP2 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV1 on IF-191/191P board
   Spec. : B = A ± 0.01V




RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
TP3
CN4
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

- **Note**

After this adjustment is completed, open between TP34 and TP4 (+5V) on the extension board.

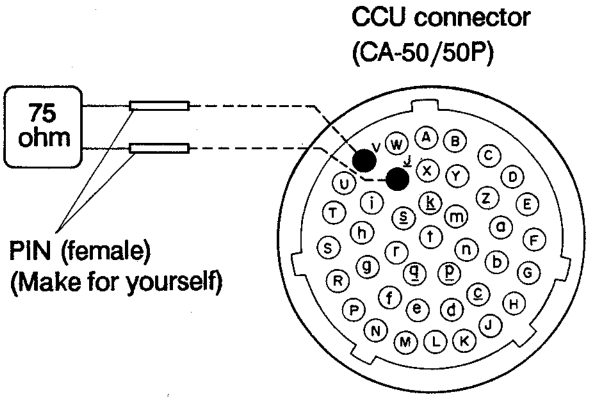
Step 12. CCU B Gain Adjustment

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

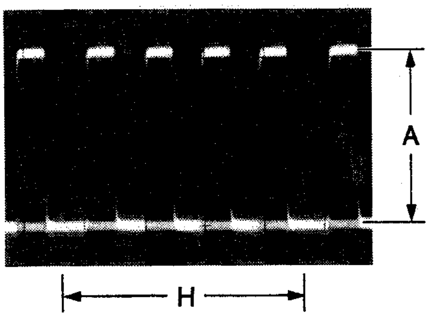
- Preparation

1. Short between TP34 and TP4 (+5V) on the extension board with a lead wire.
2. OUTPUT/DCC switch (BVP-50/50P camera) --> "BARS/OFF"
3. Terminate pins J and V of CCU conector of CA-50/50P at 75 ohm.


CCU connector
(CA-50/50P)
75 ohm
PIN (female)
(Make for yourself)
V
J
W A B C D E F G H J K L M N P R S T U
X Y Z a b c d e f g h i k m n p q r s t

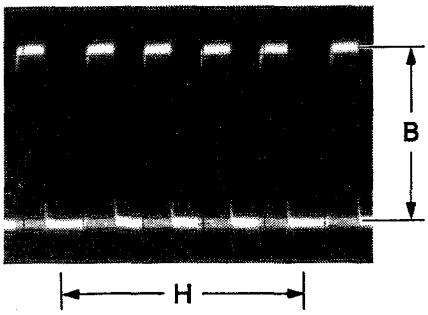
- Adjustment procedures

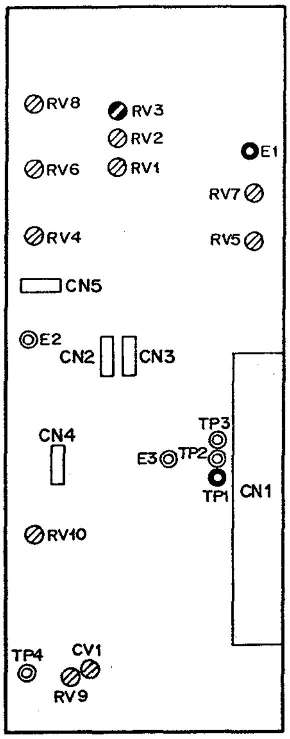
1. Measure the video level "A" of TP36 (GND: GND terminal) on the extension board.



(Proceed to next page)

2. Test point : TP1 (GND: E1) on IF-191/191P board
   Adj. point : ⊘ RV3 on IF-191/191P board
   Spec. : B = A ± 0.01V




RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
TP3
CN4
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD(COMPONENT SIDE)

- Note

After this adjustment is completed, open between TP34 and TP4 (+5V) on the extension board.

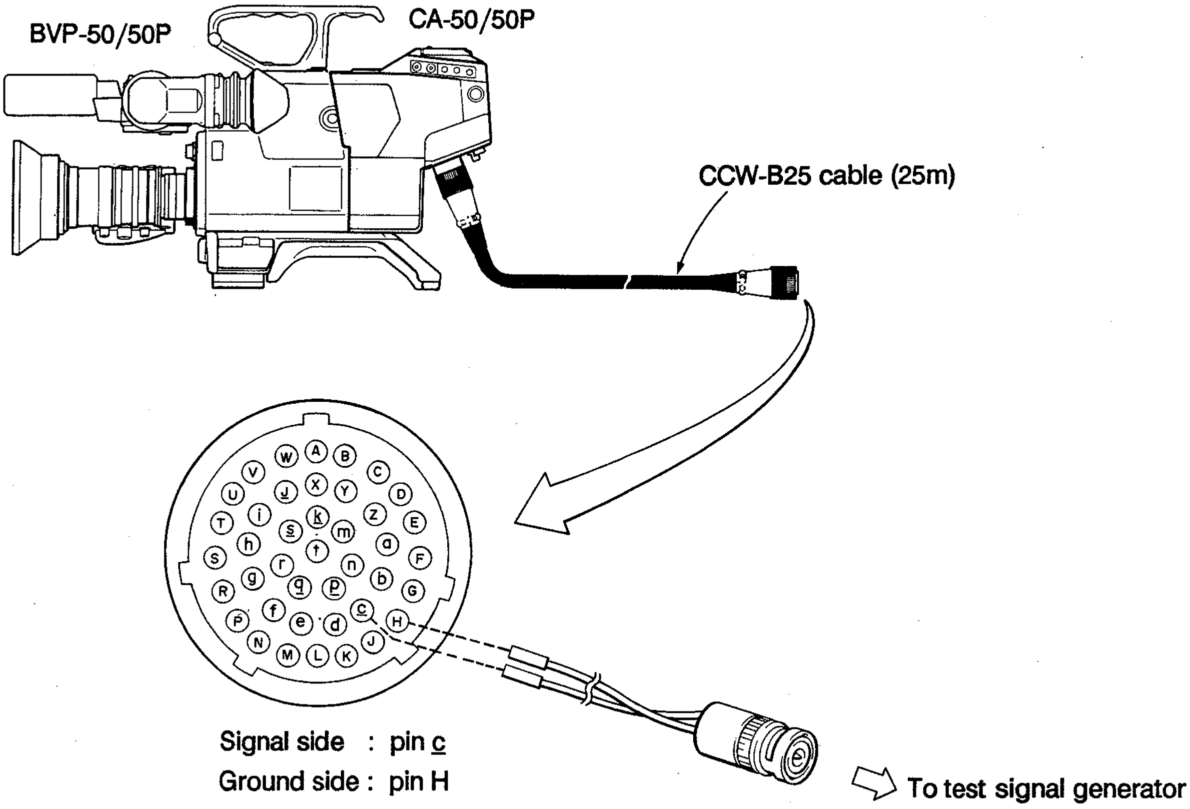
Step 13. Sample Pulse Phase Adjustment

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

- Preparation

1. Connection:

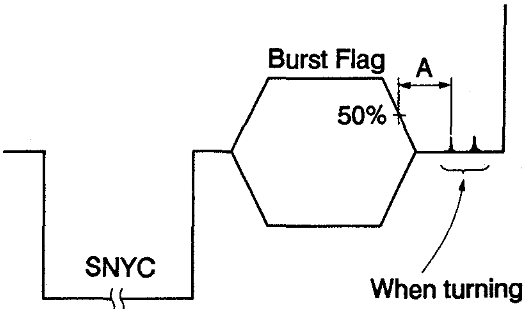

BVP-50/50P
CA-50/50P
CCW-B25 cable (25m)
Signal side : pin c
Ground side : pin H
To test signal generator

2. Output signal of test signal generator : Color bar signal

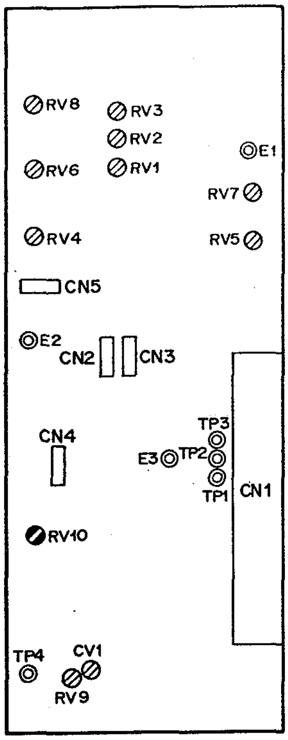
⇩ (Proceed to next page)

- Adjustment procedures

Test point : TP12 (GND: TP6)/extension board
Adj. point : ⊘ RV10 on IF-191/191P board
Spec. : A = 1.0 ± 0.1 μs


Burst Flag
A
50%
SNYC

When turning ⊘ RV11 on the IF-191 board, above pulses move.


RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
E2
CN2
CN3
CN4
TP3
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

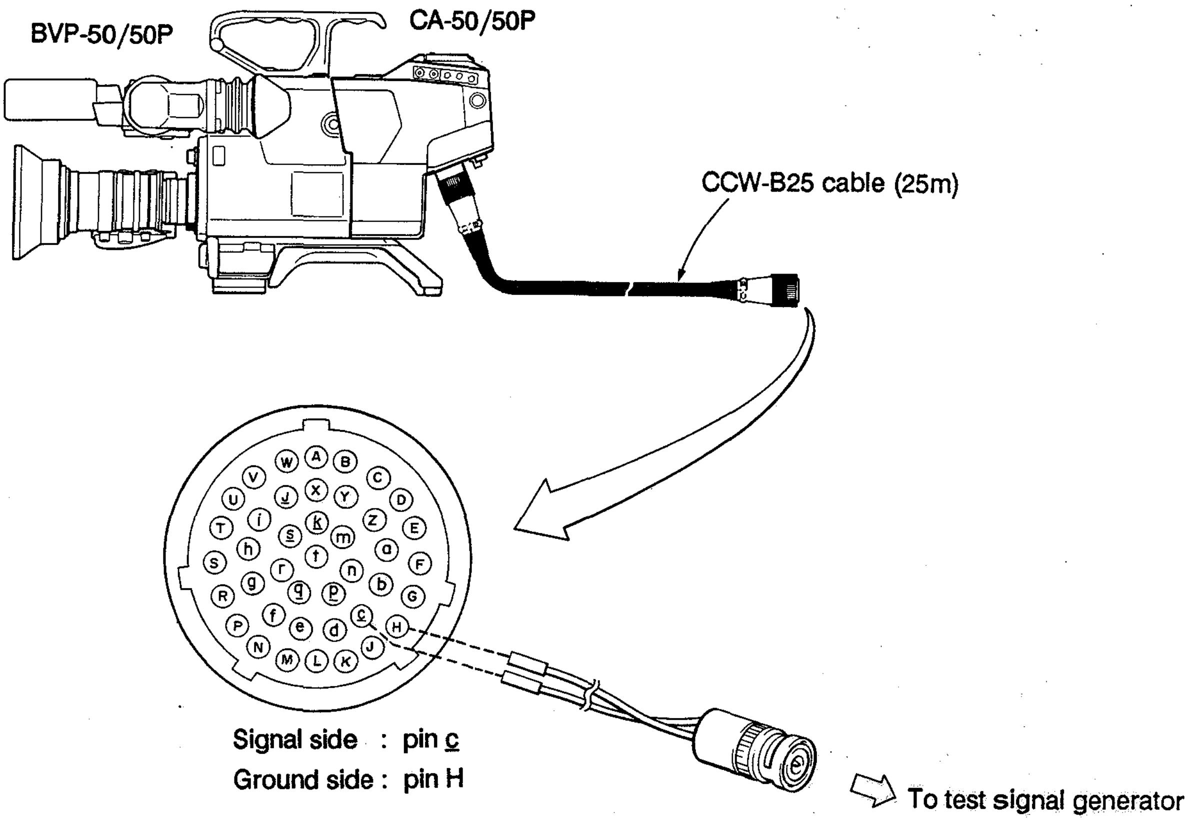
Step 14. Return Video Level Adjustment

- Setting

Equipment : Oscilloscope	Board extension : IF-191/191P board

- Preparation

1. Connection:


BVP-50/50P
CA-50/50P
CCW-B25 cable (25m)
To test signal generator

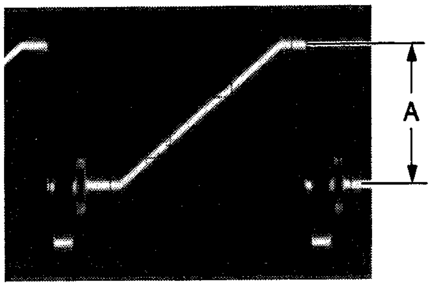
Signal side : pin c
Ground side : pin H

2. Output signal of test signal generator : Ramp Linearity Test signal
3. Terminate the RET OUT connector of CA-50/50P at 75 ohm.

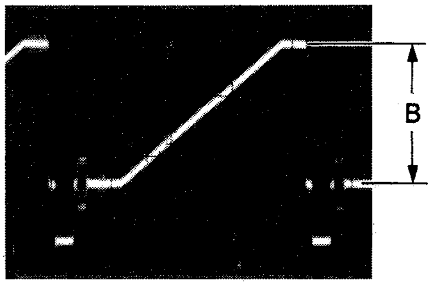
(Proceed to next page)

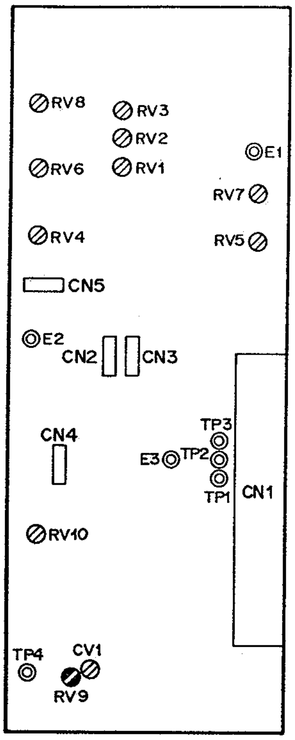
■ Adjustment procedures

1. Measure the video level "A" of TP13 (GND: TP14) on the extension board.



2. Test point : TP12 (GND: TP6)/extension board
   Adj. point : ⊘ RV9 on IF-191/191P board
   Spec. : B = A ± 0.01V




RV8
RV3
RV2
RV6
RV1
E1
RV7
RV4
RV5
CN5
E2
CN2
CN3
CN4
TP3
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

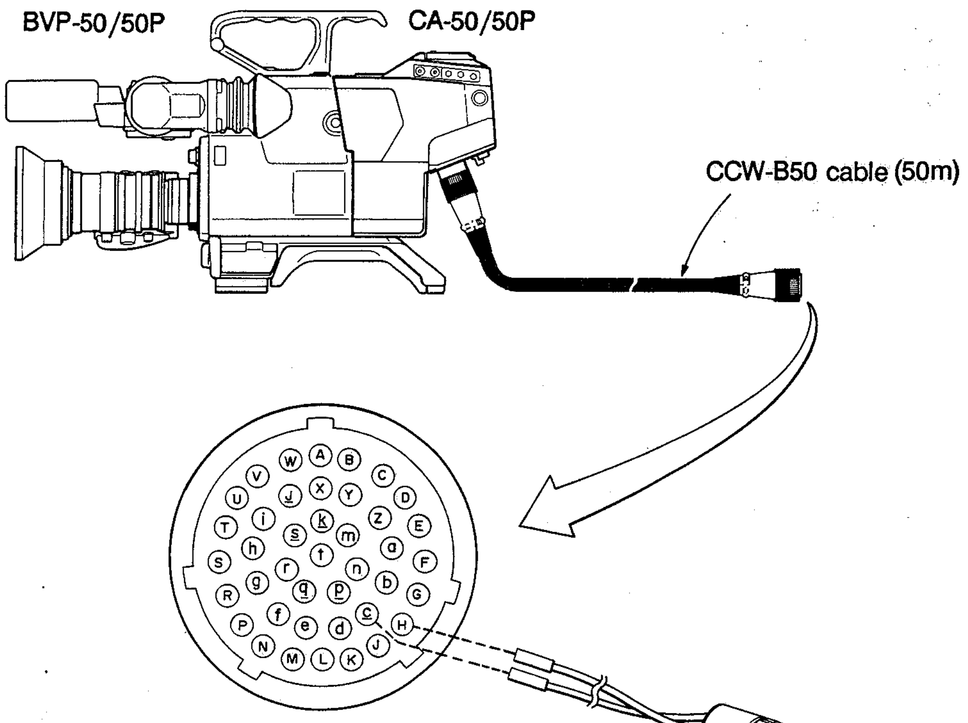
Step 15. Return Video Frequency Response Adjustment

- Setting

Equipment : Oscilloscope Board extension: IF-191/191P board	Cable length : 50m (CCW-B50 cable)

- Preparation

1. Connection:



Signal side : pin c
Ground side : pin H

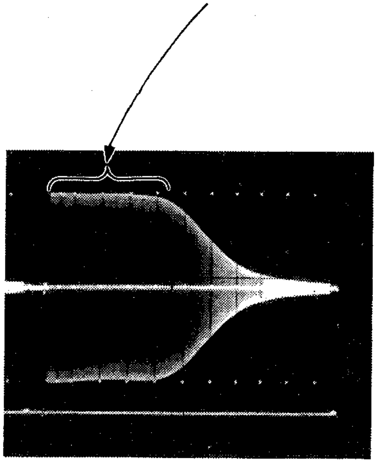
To test signal generator

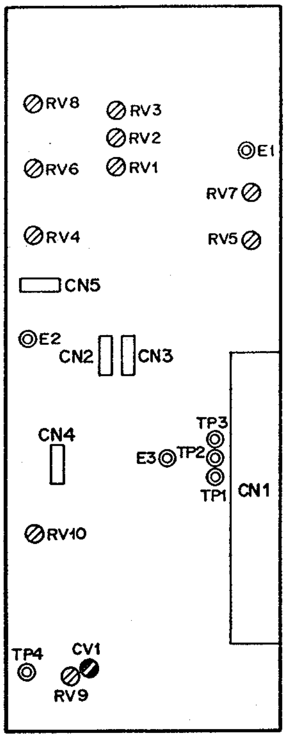
2. Output signal of test signal generator : SWEEP signal
3. Short between TP7 and TP3 (+5V) on extension board with a lead wire.
4. Terminate the RET OUT connector of CA-50/50P at 75 ohm.

(Proceed to next page)

- Adjustment procedures

Test point : RET OUT connector
(terminated by 75 ohm)
Adj. point : ⊘ CV1 on IF-191/191P board
Spec. : The waveform of 0 to 6 MHz should be flat.





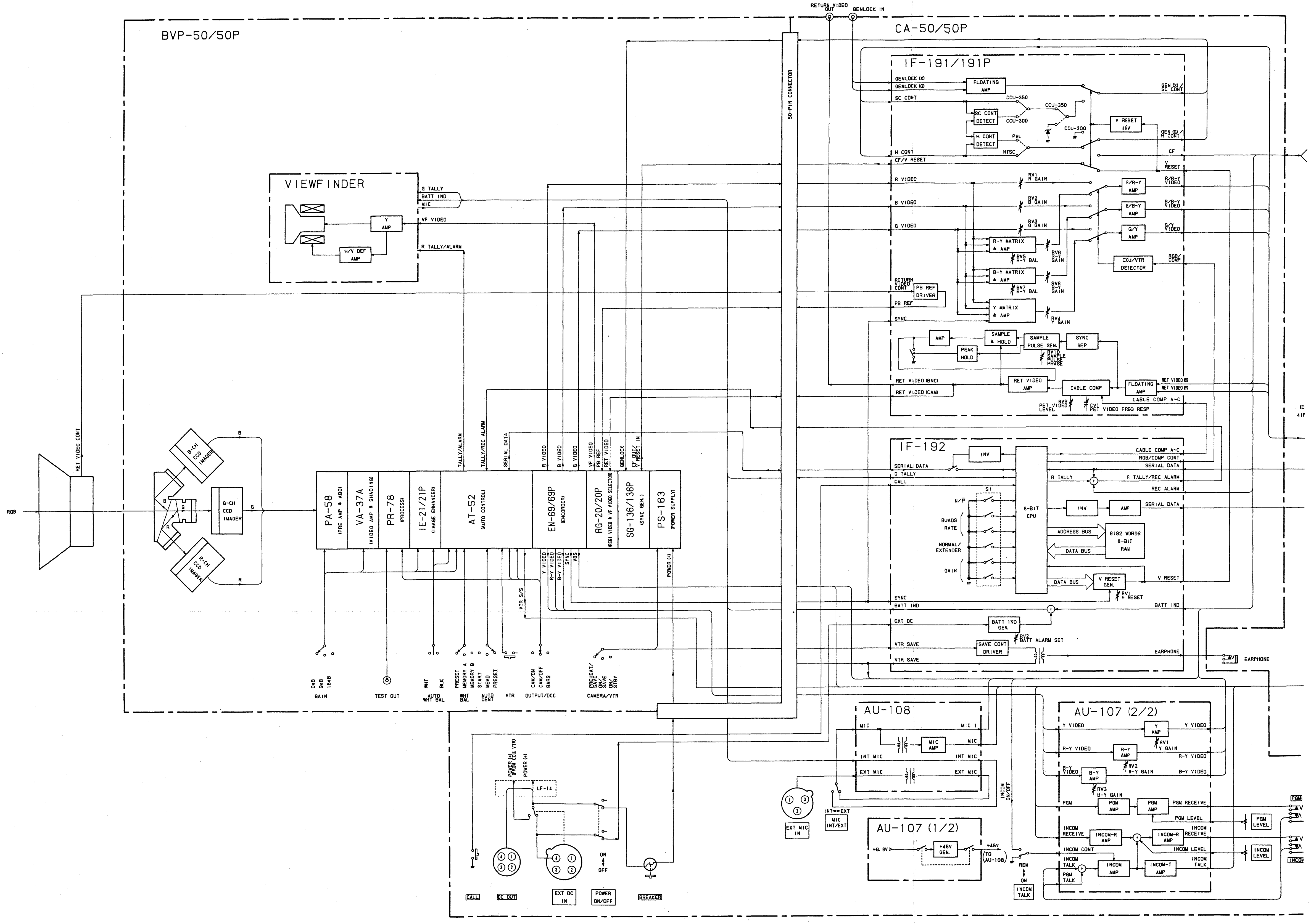
IF-191 BOARD(COMPONENT SIDE)

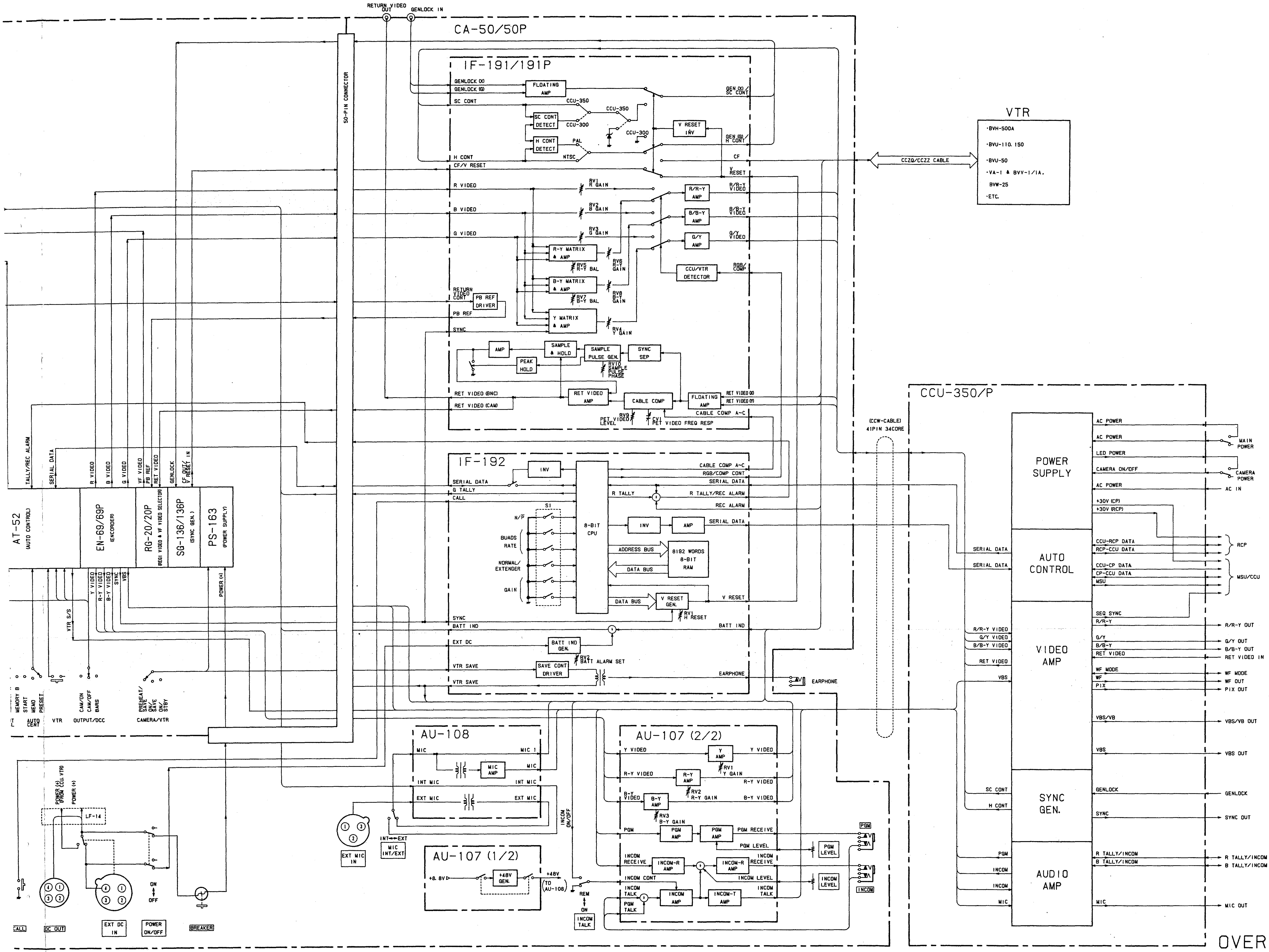
- Note

After this adjustment is completed, open between TP7 and TP3 (+5V) on the extension board.

SECTION5
BLOCK DIAGRAM

OVERALL BLOCK

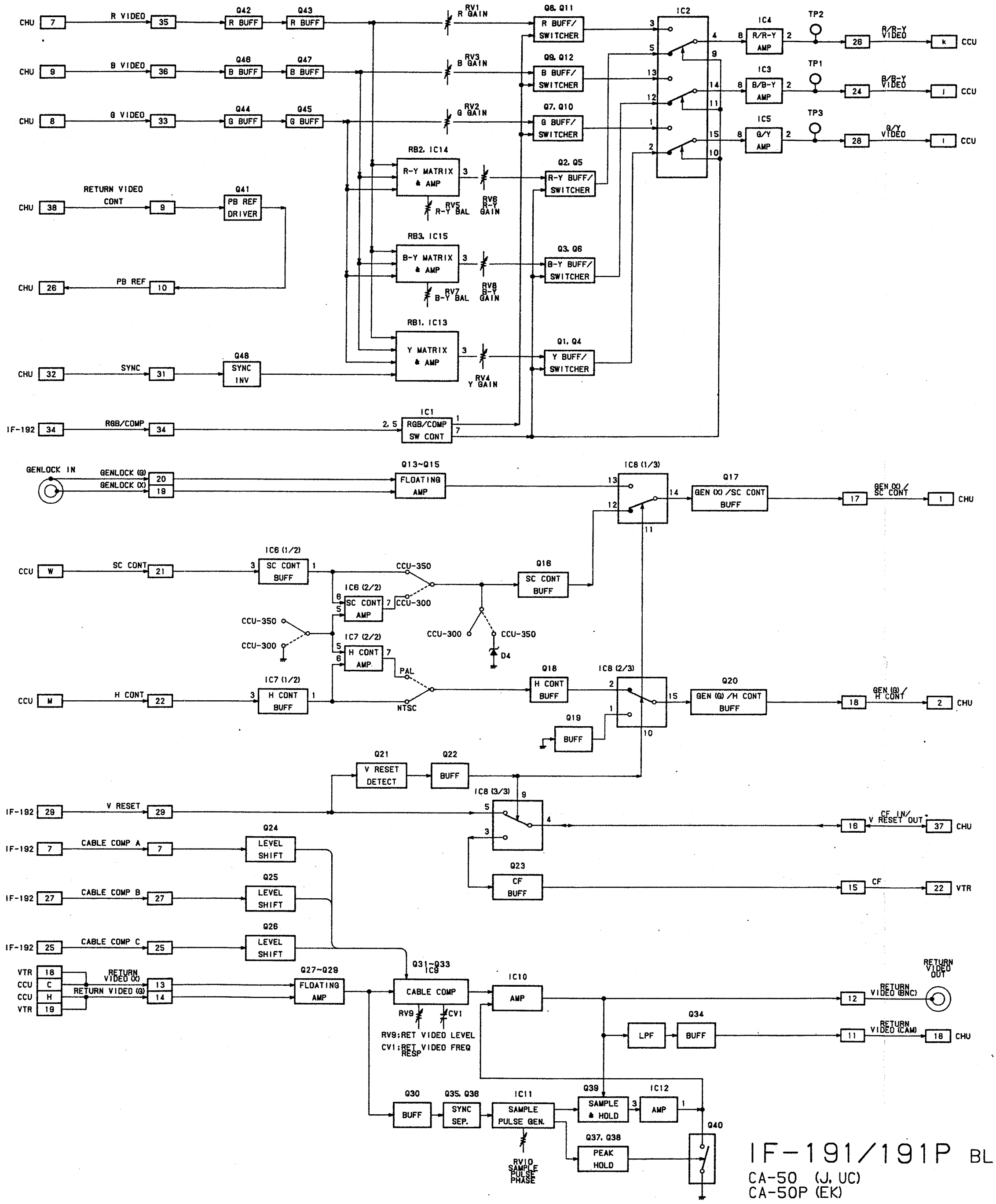

BVP-50/50P
CA-50/50P
RETURN VIDEO OUT
GENLOCK IN
VIEWFINDER
Y AMP
H/V DEF AMP
G TALLY
BATT IND
MIC
VF VIDEO
R TALLY/ALARM
RET VIDEO CONT
RGB
B-CH CCD IMAGER
G-CH CCD IMAGER
R-CH CCD IMAGER
PA-58 (PRE AMP & ABO)
VA-37A (VIDEO AMP & SHADING)
PR-78 PROCESS
IE-21/21P (IMAGE ENHANCER)
AT-52 (AUTO CONTROL)
EN-69/69P (ENCODER)
RG-20/20P
SG-136/136P (SYNC GEN.)
PS-163 (POWER SUPPLY)
50-PIN CONNECTOR
GAIN
TEST OUT
AUTO WHT BAL
WHT BAL
AUTO CENT
VTR
OUTPUT/DCC
CAMERA/VTR
IF-191/191P
FLOATING AMP
SC CONT DETECT
H CONT DETECT
V RESET INV
R-Y MATRIX & AMP
B-Y MATRIX & AMP
Y MATRIX & AMP
R/R-Y AMP
B/B-Y AMP
G/Y AMP
CCU/VTR DETECTOR
PB REF DRIVER
SAMPLE & HOLD
SAMPLE PULSE GEN.
SYNC SEP
PEAK HOLD
RET VIDEO AMP
CABLE COMP
IF-192
INV
8-BIT CPU
8192 WORDS 8-BIT RAM
V RESET GEN.
BATT IND GEN.
SAVE CONT DRIVER
EARPHONE
AU-108
MIC AMP
AU-107 (1/2)
+48V GEN.
AU-107 (2/2)
PGM AMP
INCOM-R AMP
INCOM-T AMP
INCOM AMP
PGM LEVEL
INCOM LEVEL
CALL
DC OUT
EXT DC IN
POWER ON/OFF
BREAKER
EXT MIC IN
MIC INT/EXT
INCOM TALK
LF-14


RETURN VIDEO OUT
GENLOCK IN
CA-50/50P
50-PIN CONNECTOR
IF-191/191P
GENLOCK (X)
GENLOCK (G)
SC CONT
FLOATING AMP
CCU-350
CCU-300
SC CONT DETECT
H CONT DETECT
PAL
NTSC
V RESET INV
GEN (X)/SC CONT
GEN (G)/H CONT
CF
V RESET
H CONT
CF/V RESET
R VIDEO
B VIDEO
G VIDEO
RV1 R GAIN
RV2 B GAIN
RV3 G GAIN
R/R-Y AMP
B/B-Y AMP
G/Y AMP
R/R-Y VIDEO
B/B-Y VIDEO
G/Y VIDEO
R-Y MATRIX & AMP
RV5 R-Y BAL
RV6 R-Y GAIN
B-Y MATRIX & AMP
RV7 B-Y BAL
RV8 B-Y GAIN
Y MATRIX & AMP
RV4 Y GAIN
CCU/VTR DETECTOR
RGB/COMP
RETURN VIDEO CONT
PB REF DRIVER
PB REF
SYNC
AMP
PEAK HOLD
SAMPLE & HOLD
SAMPLE PULSE GEN.
RV10 SAMPLE PULSE PHASE
SYNC SEP
RET VIDEO (BNC)
RET VIDEO (CAM)
RET VIDEO AMP
CABLE COMP
FLOATING AMP
RET VIDEO (X)
RET VIDEO (Y)
CABLE COMP A~C
RV9 PET VIDEO LEVEL
CV1 PET VIDEO FREQ RESP
IF-192
INV
SERIAL DATA
G TALLY
CALL
S1
N/P̄
BUADS RATE
NORMAL/EXTENDER
GAIN
8-BIT CPU
CABLE COMP A~C
RGB/COMP CONT
SERIAL DATA
R TALLY
R TALLY/REC ALARM
REC ALARM
INV
AMP
SERIAL DATA
ADDRESS BUS
8192 WORDS 8-BIT RAM
DATA BUS
DATA BUS
V RESET GEN.
RV1 H RESET
V RESET
SYNC
BATT IND
BATT IND
EXT DC
BATT IND GEN.
RV2 BATT ALARM SET
VTR SAVE
SAVE CONT DRIVER
VTR SAVE
EARPHONE
EARPHONE
TALLY/REC ALARM
SERIAL DATA
R VIDEO
B VIDEO
G VIDEO
VF VIDEO
PB REF
RET VIDEO
GENLOCK
CF OUT/V RESET IN
AT-52 (AUTO CONTROL)
EN-69/69P (ENCORDER)
RG-20/20P (REGI VIDEO & VF VIDEO SELECTOR)
SG-136/136P (SYNC GEN.)
PS-163 (POWER SUPPLY)
Y VIDEO
R-Y VIDEO
B-Y VIDEO
SYNC
VBS
POWER (+)
VTR S/S
MEMORY B
START
MEMO
PRESET
AUTO CENT
VTR
CAM/ON
CAM/OFF
BARS
OUTPUT/DCC
PREHEAT/SAVE
ON/SAVE
ON/STBY
CAMERA/VTR
POWER (+) (FROM CCU, VTR)
POWER (+)
LF-14
CALL
DC OUT
EXT DC IN
ON
OFF
POWER ON/OFF
BREAKER
AU-108
MIC
MIC 1
MIC AMP
MIC
INT MIC
INT MIC
EXT MIC
EXT MIC
EXT MIC IN
INT↔EXT
MIC INT/EXT
AU-107 (1/2)
+8.8V
+48V GEN.
+48V
(TO AU-108)
INCOM ON/OFF
REM
ON
INCOM TALK
AU-107 (2/2)
Y VIDEO
Y AMP
RV1 Y GAIN
Y VIDEO
R-Y VIDEO
R-Y AMP
RV2 R-Y GAIN
R-Y VIDEO
B-Y VIDEO
B-Y AMP
RV3 B-Y GAIN
B-Y VIDEO
PGM
PGM AMP
PGM AMP
PGM RECEIVE
PGM LEVEL
PGM LEVEL
PGM
INCOM RECEIVE
INCOM-R AMP
INCOM-R AMP
INCOM RECEIVE
INCOM CONT
INCOM LEVEL
INCOM LEVEL
INCOM TALK
INCOM AMP
INCOM-T AMP
INCOM TALK
PGM TALK
INCOM
VTR
•BVH-500A
•BVU-110, 150
•BVU-50
•VA-1 & BVV-1/1A,
BVW-25
•ETC.
CCZQ/CCZZ CABLE
(CCW-CABLE)
41PIN 34CORE
CCU-350/P
POWER SUPPLY
AC POWER
AC POWER
LED POWER
CAMERA ON/OFF
AC POWER
+30V (CP)
+30V (RCP)
MAIN POWER
CAMERA POWER
AC IN
AUTO CONTROL
SERIAL DATA
SERIAL DATA
CCU-RCP DATA
RCP-CCU DATA
CCU-CP DATA
CP-CCU DATA
MSU
RCP
MSU/CCU
VIDEO AMP
SEQ SYNC
R/R-Y VIDEO
G/Y VIDEO
B/B-Y VIDEO
RET VIDEO
VBS
R/R-Y
G/Y
B/B-Y
RET VIDEO
WF MODE
WF
PIX
VBS/VB
VBS
R/R-Y OUT
G/Y OUT
B/B-Y OUT
RET VIDEO IN
WF MODE
WF OUT
PIX OUT
VBS/VB OUT
VBS OUT
SYNC GEN.
SC CONT
H CONT
GENLOCK
SYNC
GENLOCK
SYNC OUT
AUDIO AMP
PGM
INCOM
INCOM
MIC
R TALLY/INCOM
B TALLY/INCOM
MIC
R TALLY/INCOM
B TALLY/INCOM
MIC OUT

OVERALL BLOCK
CA-50 (J, UC)
CA-50P (EK)

IF-191 B/D

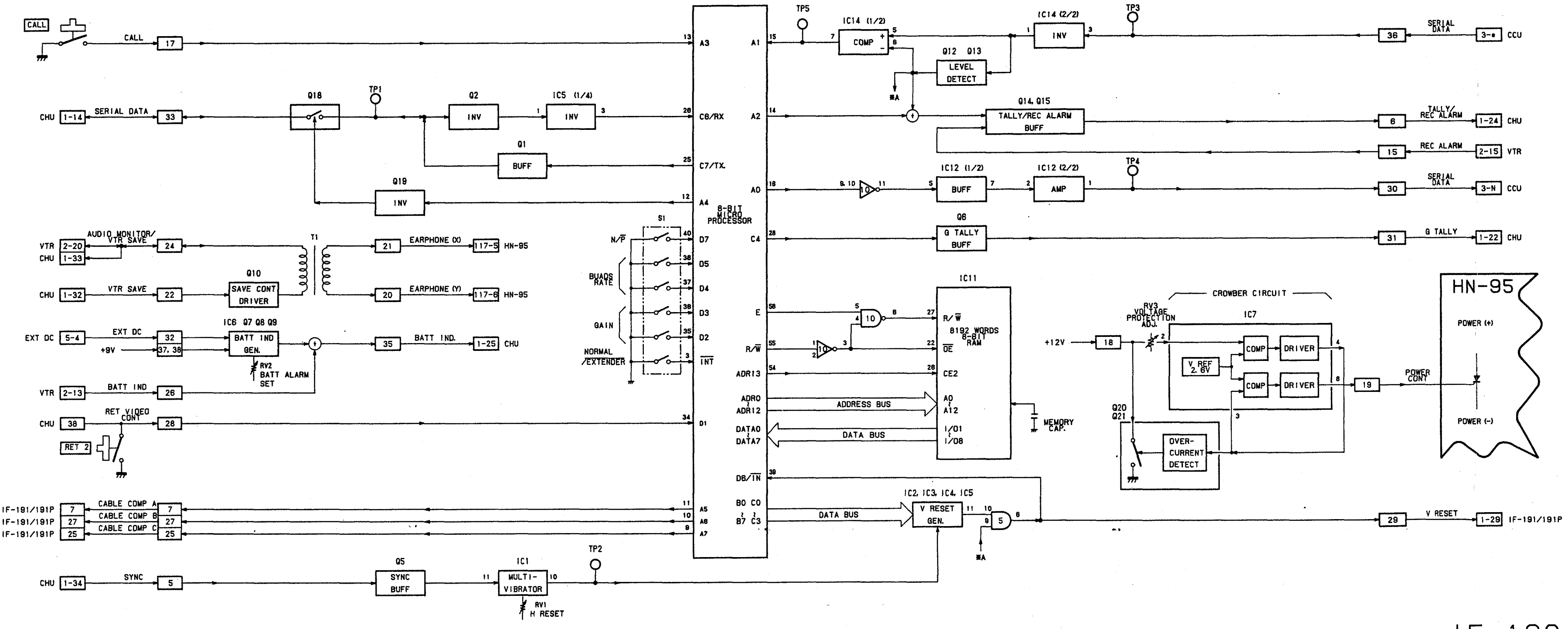
IF-191 BLOCK


CHU
7
R VIDEO
35
Q42
R BUFF
Q43
R BUFF
RV1
R GAIN
Q8, Q11
R BUFF/
SWITCHER
IC2
IC4
R/R-Y
AMP
TP2
26
R/R-Y
VIDEO
k
CCU
9
B VIDEO
36
Q46
B BUFF
Q47
B BUFF
RV3
B GAIN
Q9, Q12
B BUFF/
SWITCHER
IC3
B/B-Y
AMP
TP1
24
B/B-Y
VIDEO
j
8
G VIDEO
33
Q44
G BUFF
Q45
G BUFF
RV2
G GAIN
Q7, Q10
G BUFF/
SWITCHER
IC5
G/Y
AMP
TP3
28
G/Y
VIDEO
i
RB2, IC14
R-Y MATRIX
& AMP
RV5
R-Y BAL
RV6
R-Y
GAIN
Q2, Q5
R-Y BUFF/
SWITCHER
38
RETURN VIDEO
CONT
Q41
PB REF
DRIVER
26
PB REF
10
RB3, IC15
B-Y MATRIX
& AMP
RV7
B-Y BAL
RV8
B-Y
GAIN
Q3, Q6
B-Y BUFF/
SWITCHER
RB1, IC13
Y MATRIX
& AMP
RV4
Y GAIN
Q1, Q4
Y BUFF/
SWITCHER
32
SYNC
31
Q48
SYNC
INV
IF-192
34
RGB/COMP
IC1
RGB/COMP
SW CONT
GENLOCK IN
GENLOCK (G)
GENLOCK (X)
20
19
Q13~Q15
FLOATING
AMP
IC8 (1/3)
Q17
GEN (X) /SC CONT
BUFF
17
GEN (X) /
SC CONT
1
W
SC CONT
21
IC6 (1/2)
SC CONT
BUFF
CCU-350
CCU-300
IC6 (2/2)
SC CONT
AMP
Q16
SC CONT
BUFF
D4
IC7 (2/2)
H CONT
AMP
PAL
NTSC
M
H CONT
22
IC7 (1/2)
H CONT
BUFF
Q18
H CONT
BUFF
IC8 (2/3)
Q19
BUFF
Q20
GEN (G) /H CONT
BUFF
18
GEN (G) /
H CONT
2
Q21
V RESET
DETECT
Q22
BUFF
IC8 (3/3)
29
V RESET
16
CF IN/
V RESET OUT
37
CABLE COMP A
Q24
LEVEL
SHIFT
Q23
CF
BUFF
15
CF
22
VTR
27
CABLE COMP B
Q25
LEVEL
SHIFT
25
CABLE COMP C
Q26
LEVEL
SHIFT
VTR
CCU
C
H
RETURN
VIDEO (X)
RETURN VIDEO (G)
13
14
Q27~Q29
FLOATING
AMP
Q31~Q33
IC9
CABLE COMP
RV9
CV1
RV9;RET VIDEO LEVEL
CV1;RET VIDEO FREQ
RESP
IC10
AMP
12
RETURN
VIDEO (BNC)
RETURN
VIDEO
OUT
LPF
Q34
BUFF
11
RETURN
VIDEO (CAM)
18
Q30
BUFF
Q35, Q36
SYNC
SEP.
IC11
SAMPLE
PULSE GEN.
RV10
SAMPLE
PULSE
PHASE
Q39
SAMPLE
& HOLD
IC12
AMP
Q37, Q38
PEAK
HOLD
Q40

IF-191/191P BLOCK

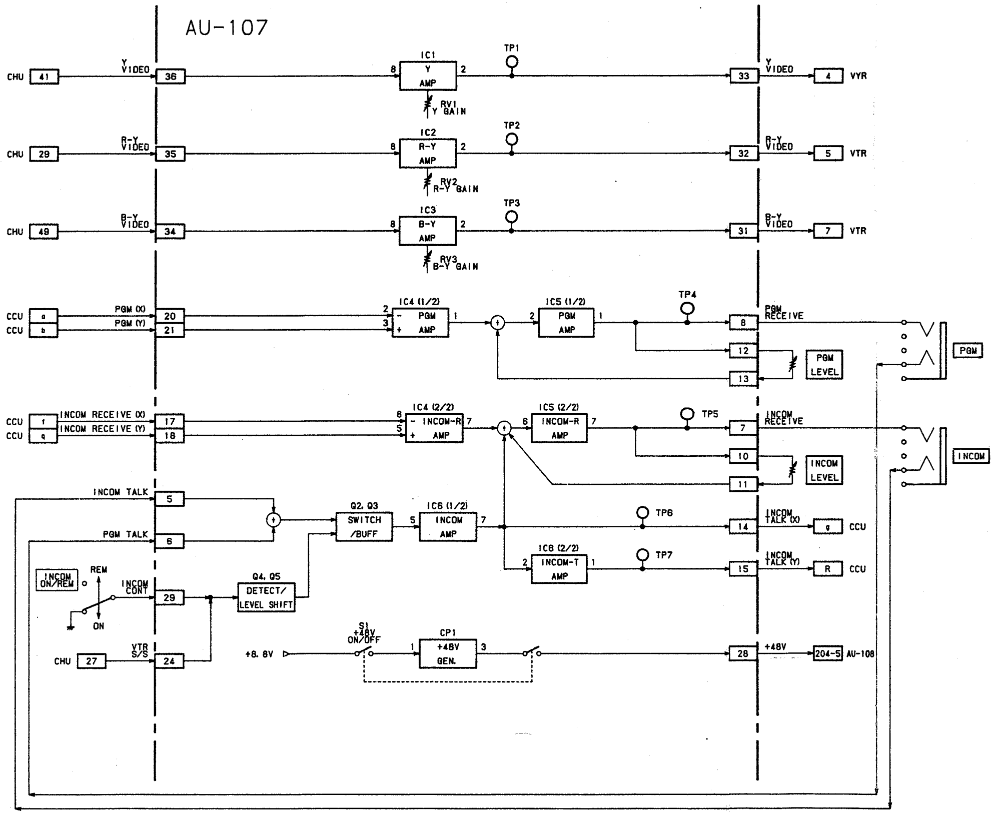
CA-50 (J, UC)
CA-50P (EK)

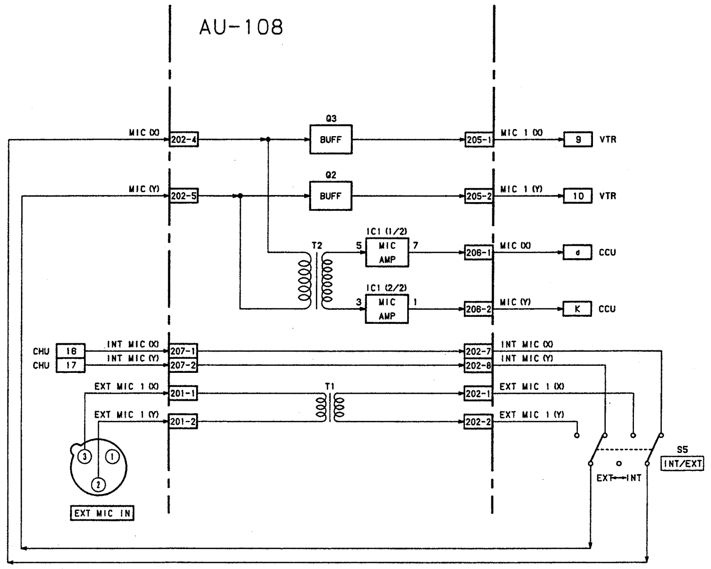
IF-192 BLOCK


CALL
17
CHU 1-14 SERIAL DATA 33
Q18
TP1
Q2 INV
IC5 (1/4) INV
Q1 BUFF
Q19 INV
VTR 2-20 CHU 1-33 AUDIO MONITOR/ VTR SAVE 24
T1
21 EARPHONE (X) 117-5 HN-95
20 EARPHONE (Y) 117-6 HN-95
CHU 1-32 VTR SAVE 22
Q10 SAVE CONT DRIVER
EXT DC 5-4 EXT DC 32
+9V 37, 38
IC6 Q7 Q8 Q9 BATT IND GEN.
RV2 BATT ALARM SET
35 BATT IND. 1-25 CHU
VTR 2-13 BATT IND 26
CHU 38 RET VIDEO CONT 28
RET 2
IF-191/191P 7 CABLE COMP A 7
IF-191/191P 27 CABLE COMP B 27
IF-191/191P 25 CABLE COMP C 25
CHU 1-34 SYNC 5
Q5 SYNC BUFF
IC1 MULTI-VIBRATOR
RV1 H RESET
TP2
S1
N/P
BUADS RATE
GAIN
NORMAL /EXTENDER
IC8
8-BIT MICRO PROCESSOR
A3 C6/RX C7/TX. A4 D7 D5 D4 D3 D2 INT D1 A5 A6 A7
A1 A2 A0 C4 E R/W ADR13 ADR0 ~ ADR12 DATA0 ~ DATA7 D6/IN B0 ~ B7 C0 ~ C3
TP5
IC14 (1/2) COMP
Q12 Q13 LEVEL DETECT
*A
IC14 (2/2) INV
TP3
36 SERIAL DATA 3-* CCU
Q14, Q15 TALLY/REC ALARM BUFF
6 TALLY/ REC ALARM 1-24 CHU
15 REC ALARM 2-15 VTR
IC12 (1/2) BUFF
IC12 (2/2) AMP
TP4
30 SERIAL DATA 3-N CCU
Q6 G TALLY BUFF
31 G TALLY 1-22 CHU
IC11
8192 WORDS 8-BIT RAM
R/W OE CE2 A0 ~ A12 I/O1 ~ I/O8
ADDRESS BUS
DATA BUS
MEMORY CAP.
IC2, IC3, IC4, IC5 V RESET GEN.
DATA BUS
29 V RESET 1-29 IF-191/191P
CROWBER CIRCUIT
RV3 VOLTAGE PROTECTION ADJ.
+12V 18
IC7
V REF 2.6V
COMP DRIVER
COMP DRIVER
Q20 Q21
OVER-CURRENT DETECT
19 POWER CONT
HN-95
POWER (+)
POWER (-)

IF-192 BLOCK
CA-50 (J, UC)
CA-50P (EK)

AU-107 BLOCK
AU-108 BLOCK


AU-107
CHU 41
Y VIDEO
36
IC1
Y AMP
8
2
TP1
RV1 Y GAIN
33
Y VIDEO
4
VYR
CHU 29
R-Y VIDEO
35
IC2
R-Y AMP
TP2
RV2 R-Y GAIN
32
R-Y VIDEO
5
VTR
CHU 49
B-Y VIDEO
34
IC3
B-Y AMP
TP3
RV3 B-Y GAIN
31
B-Y VIDEO
7
VTR
CCU a
CCU b
PGM (X)
PGM (Y)
20
21
IC4 (1/2)
PGM AMP
IC5 (1/2)
PGM AMP
TP4
8
PGM RECEIVE
12
13
PGM LEVEL
PGM
CCU f
CCU q
INCOM RECEIVE (X)
INCOM RECEIVE (Y)
17
18
IC4 (2/2)
INCOM-R AMP
IC5 (2/2)
INCOM-R AMP
TP5
7
INCOM RECEIVE
10
11
INCOM LEVEL
INCOM
INCOM TALK
5
PGM TALK
6
Q2, Q3
SWITCH /BUFF
IC6 (1/2)
INCOM AMP
TP6
14
INCOM TALK (X)
g
CCU
IC6 (2/2)
INCOM-T AMP
TP7
15
INCOM TALK (Y)
R
CCU
INCOM ON/REM
REM
ON
INCOM CONT
29
Q4, Q5
DETECT/ LEVEL SHIFT
CHU 27
VTR S/S
24
+8. 8V
S1 +48V ON/OFF
CP1
+48V GEN.
28
+48V
204-5
AU-108


AU-108
MIC (X)
202-4
Q3
BUFF
205-1
MIC 1 (X)
9
VTR
MIC (Y)
202-5
Q2
BUFF
205-2
MIC 1 (Y)
10
VTR
T2
IC1 (1/2)
MIC AMP
206-1
MIC (X)
d
CCU
IC1 (2/2)
MIC AMP
206-2
MIC (Y)
K
CCU
CHU 16
CHU 17
INT MIC (X)
INT MIC (Y)
207-1
207-2
202-7
202-8
INT MIC (X)
INT MIC (Y)
EXT MIC 1 (X)
EXT MIC 1 (Y)
201-1
201-2
T1
202-1
202-2
EXT MIC 1 (X)
EXT MIC 1 (Y)
EXT MIC IN
S5
INT/EXT
EXT↔INT

AU-107 BLOCK
AU-108 BLOCK
CA-50 (J, UC)
CA-50P (EK)

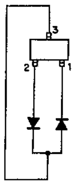
SECTION 6
SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacuturer.

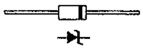
TYPE	PAGE
1S1555	6-2
1S2835	6-2
1S2837	6-2
1SS123	6-2
1SZ53	6-2
2SA1226	6-2
2SA812	6-2
2SC1009A	6-2
2SC1623	6-2
2SC2757	6-2
2SC3115	6-2
2SD774	6-2
2SK94	6-2
5P6M	6-2
BH1217	6-2
BX1305	6-3
BX1356	6-3
EQB01-22	6-2
HD63PB05Y1	6-6
HM6264LFP-15T	6-3
HN27C64G-20	6-4
HZ11B2L	6-2
HZ3ALL	6-2
HZ3CLL	6-2
NJM2043D-D	6-4
NJM4556D-D	6-4
NJM4560D-D	6-4
NJM78L05A	6-4
RD10EB2	6-2
RD3.6EL2	6-2
RD4.7EL2	6-2
RD5.1EL2	6-2
RD5.6EL2	6-2
TC40H000F	6-4
TC40163BP	6-4
TC4053BF	6-5
TC4538BF	6-5
TC74HC221F	6-5
TL062ACPS	6-5
µPC3423C	6-5
µPC393G2	6-5

DIODE, TRANSISTOR

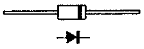
TOP VIEW (SCALE 4/1)



1SS123
HSM88AS

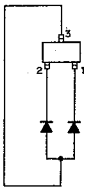


1SZ ? ?
EQB01- ? ? ?
HZ ? ?ALL
HZ ? ?B ?
HZ ? ?C ?
RD ? ?EB ?
RD ? ?EL



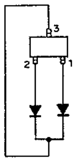
1S1555

TOP VIEW (SCALE 4/1)

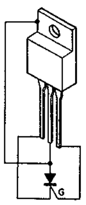


1S2835

TOP VIEW (SCALE 4/1)

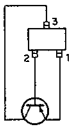


1S2837



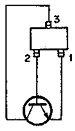
5P6M

TOP VIEW (SCALE 4/1)

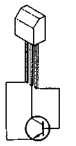


2SA1226
2SA812

TOP VIEW (SCALE 4/1)

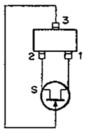


2SC1009A
2SC1623
2SC2757
2SC3115



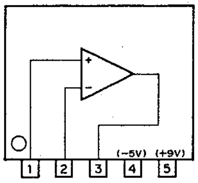
2SD774

TOP VIEW (SCALE 4/1)

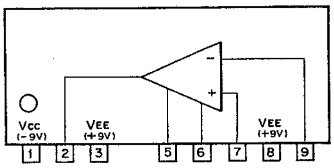


2SK94

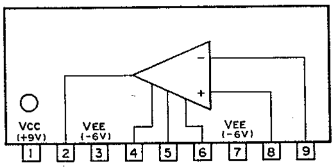
BH1217 (SONY)
VIDEO AMPLIFIER
— PRINTED SIDE VIEW —



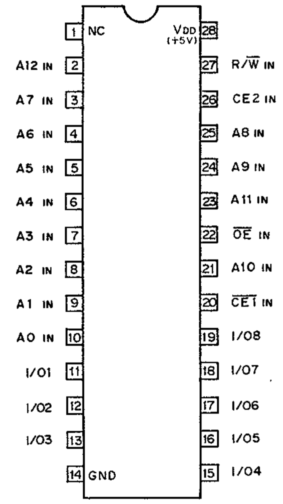
BX1305 (SONY)
VIDEO AMPLIFIER
— PRINTED SIDE —

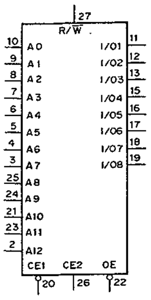

-
+
Vcc (-9V)
VEE (+9V)
VEE (+9V)
1
2
3
5
6
7
8
9

BX1356 (SONY)
VIDEO OUTPUT AMPLIFIER
— PRINTED SIDE —


-
+
Vcc (+9V)
VEE (-6V)
VEE (-6V)
1
2
3
4
5
6
7
8
9

HM6264LFP-15T (HITACHI) (ACCESS TIME = 150 nS) FLAT PACKAGE
C-MOS 8192 WORDx8-BIT STATIC RAM
— TOP VIEW —

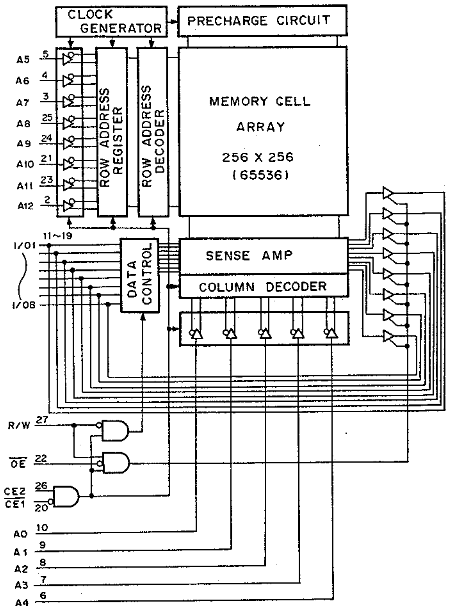

1 NC
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
I/O1 11
I/O2 12
I/O3 13
14 GND
VDD (+5V) 28
27 R/W IN
26 CE2 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 OE IN
21 A10 IN
20 CE1 IN
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4


27
R/W
10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
I/O1 11
I/O2 12
I/O3 13
I/O4 15
I/O5 16
I/O6 17
I/O7 18
I/O8 19
CE1
CE2
OE
20
26
22

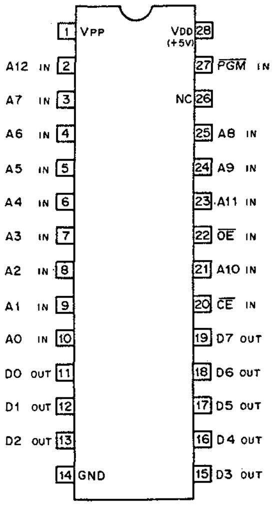
A0−12 ; ADDRESS INPUTS
CE1,2 ; CHIP ENABLE INPUTS
OE ; OUTPUT ENABLE INPUT
I/O1−8 ; DATA INPUTS/OUTPUTS
R/W ; READ/WRITE INPUT

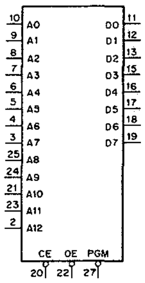
MODE	$\overline{\text{CE1}}$	CE2	$\overline{\text{OE}}$	R/$\overline{\text{W}}$	I/O1~8
READ	0	1	0	1	DATA OUTPUTS
WRITE	0	1	X	0	DATA INPUTS
OUTPUT DESELECT	0	1	1	1	HI-Z
STANDBY	1	X	X	X	HI-Z
	X	0	X	X	HI-Z

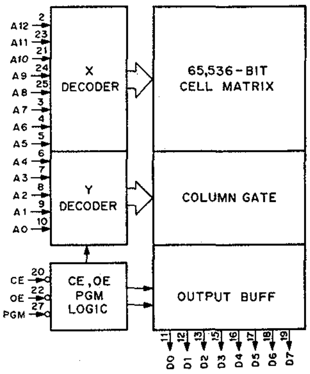
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE


CLOCK GENERATOR
PRECHARGE CIRCUIT
A5 5
A6 4
A7 3
A8 25
A9 24
A10 21
A11 23
A12 2
ROW ADDRESS REGISTER
ROW ADDRESS DECODER
MEMORY CELL ARRAY
256 X 256 (65536)
11~19
I/O1
I/O8
DATA CONTROL
SENSE AMP
COLUMN DECODER
R/W 27
OE 22
CE2 26
CE1 20
A0 10
A1 9
A2 8
A3 7
A4 6

HN27C64G-20 (HITACHI) (ACCESS TIME = 200 nS)
C-MOS 64K (8K-8) ERASABLE PROM WITH 3-STATE OUTPUTS
— TOP VIEW —


1 VPP
VDD (+5V) 28
A12 IN 2
27 PGM IN
A7 IN 3
NC 26
A6 IN 4
25 A8 IN
A5 IN 5
24 A9 IN
A4 IN 6
23 A11 IN
A3 IN 7
22 OE IN
A2 IN 8
21 A10 IN
A1 IN 9
20 CE IN
A0 IN 10
19 D7 OUT
D0 OUT 11
18 D6 OUT
D1 OUT 12
17 D5 OUT
D2 OUT 13
16 D4 OUT
14 GND
15 D3 OUT


10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
D0 11
D1 12
D2 13
D3 15
D4 16
D5 17
D6 18
D7 19
CE OE PGM
20 22 27

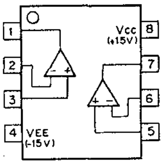

A12 2
A11 23
A10 21
A9 24
A8 25
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
X DECODER
65,536-BIT CELL MATRIX
Y DECODER
COLUMN GATE
CE 20
OE 22
PGM 27
CE, OE PGM LOGIC
OUTPUT BUFF
11 12 13 15 16 17 18 19
D0 D1 D2 D3 D4 D5 D6 D7

A0-A12 ; ADDRESS
CE ; CHIP ENABLE
D0-D7 ; DATA OUTPUT
OE ; OUTPUT ENABLE
PGM ; PROGRAM ENABLE
VPP ; PROGRAM VOLTAGE

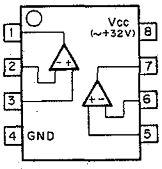
An	CE	OE	PGM	VPP	Dn	FUNCTION
An	0	0	1	+5V	D OUT	READ
An	0	1	1	+5V	HI-Z	OUTPUT DISABLE
An	0	0	0	+5V	HI-Z	OUTPUT DISABLE
X	1	X	X	+5V	HI-Z	STANDBY
An	0	X	⊔	+21V	DIN	PGM
An	0	0	1	+21V	D OUT	PGM VERIFY
X	1	X	X	+21V	HI-Z	PGM INH

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

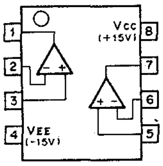
NJM2043D-D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —


1
2
3
4 VEE (-15V)
Vcc (+15V) 8
7
6
5

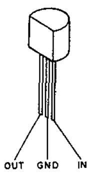
NJM4556D-D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —

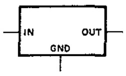

1
2
3
4 GND
Vcc (~+32V) 8
7
6
5

NJM4560DD (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —


1
2
3
4 VEE (-15V)
Vcc (+15V) 8
7
6
5

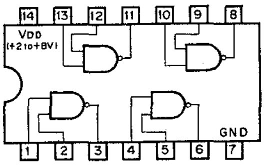
NJM78L??A (NEC)
POSITIVE VOLTAGE REGULATOR (100mA)

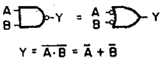




OUTPUT VOLTAGE	NJM78L??A	uA78L??ACL	uA78L??AWV	uPC78L??J	AN78L??
+2.6V	NJM78L02A	uA78L02ACL	uA78L26AWV	----------	-------
+4V	----------	----------	----------	----------	AN78L04
+5V	NJM78L05A	uA78L05ACL	uA78L05AWV	uPC78L05J	AN78L05
+6V	NJM78L06A	----------	----------	----------	AN78L06
+6.2V	----------	uA78L06ACL	uA78L62AWV	----------	-------
+7V	----------	----------	----------	----------	AN78L07
+8V	NJM78L08A	uA78L08ACL	----------	uPC78L08J	AN78L08
+8.2V	----------	----------	uA78L82AWV	----------	-------
+9V	NJM78L09A	uA78L09ACL	uA78L09AWV	----------	AN78L09
+10V	----------	uA78L10ACL	----------	uPC78L10J	AN78L10
+12V	NJM78L12A	uA78L12ACL	uA78L12AWV	uPC78L12J	AN78L12
+15V	NJM78L15A	uA78L15ACL	uA78L15AWV	uPC78L15J	AN78L15
+18V	NJM78L18A	----------	uA78L18AWV	----------	AN78L18
+20V	NJM78L20A	----------	----------	----------	AN78L20
+24V	NJM78L24A	----------	uA78L24AWV	----------	AN78L24

TC40H000F (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND GATE
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+2 to +8V)
GND
1 2 3 4 5 6 7

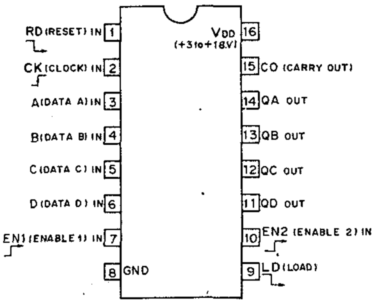


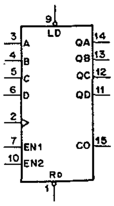
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

TC40163BP (TOSHIBA)
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
— TOP VIEW —

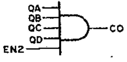

RD (RESET) IN 1
CK (CLOCK) IN 2
A (DATA A) IN 3
B (DATA B) IN 4
C (DATA C) IN 5
D (DATA D) IN 6
EN1 (ENABLE 1) IN 7
8 GND
VDD (+3 to +18V) 16
15 CO (CARRY OUT)
14 QA OUT
13 QB OUT
12 QC OUT
11 QD OUT
10 EN2 (ENABLE 2) IN
9 LD (LOAD)


9
LD
3 A
4 B
5 C
6 D
2
7 EN1
10 EN2
RD
1
QA 14
QB 13
QC 12
QD 11
CO 15

MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"


QA
QB
QC
QD
EN2
CO

CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

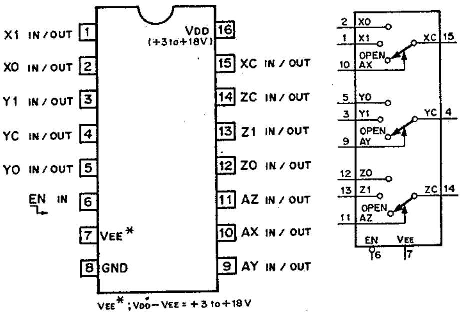
COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

TC4053BF (TOSHIBA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER

— TOP VIEW —


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD 16 (+3 to +18V)
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT
VEE*; VDD−VEE = +3 to +18V
2 X0
1 X1
10 AX
OPEN
XC 15
5 Y0
3 Y1
9 AY
YC 4
12 Z0
13 Z1
11 AZ
ZC 14
EN 6
VEE 7

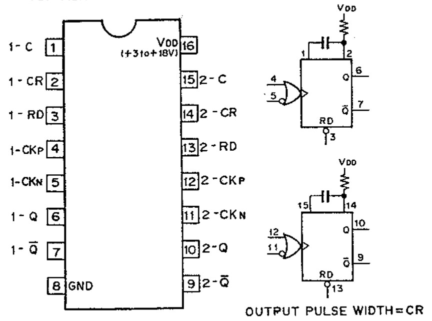
CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

TC4538BF (TOSHIBA) FLAT PACKAGE

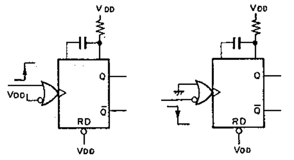
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR

— TOP VIEW —

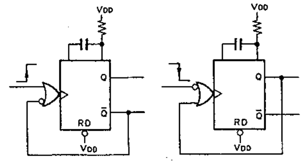

1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD 16 (+3 to +18V)
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄
VDD
1
2
4
5
6
7
Q
Q̄
RD
3
15
14
12
11
10
9
13

OUTPUT PULSE WIDTH=CR

RETRIGGERABLE M.M.V



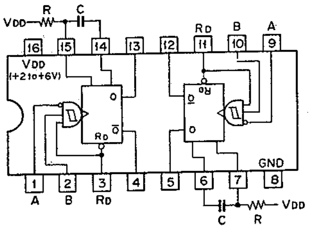
NON-RETRIGGERABLE M.M.V



TC74HC221F (TOSHIBA) FLAT PACKAGE

C-MOS MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT

— TOP VIEW —


R
C
VDD
RD
B
A
16
15
14
13
12
11
10
9
VDD (+2 to +6V)
Q
Q̄
RD
D
GND
1
2
3
4
5
6
7
8
A
B
RD
C
R
VDD

INPUTS			OUTPUTS	
RD	A	B	Q	Q̄
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⎍	⊔
1	↓	1	⎍	⊔
↑	0	1	⎍	⊔

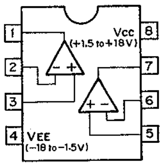
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH=0.7CR

TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(JFET INPUT)

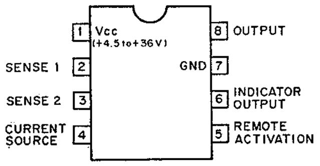
— TOP VIEW —

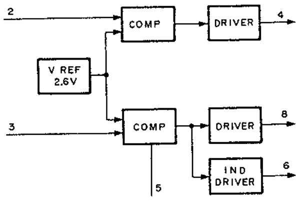

1
2
3
4
Vcc 8 (+1.5 to +18V)
7
6
5
VEE (−18 to −1.5V)

uPC3423C (NEC)

OVERVOLTAGE CROWBAR SENSING CIRCUIT

— TOP VIEW —

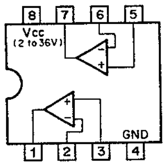

1 Vcc (+4.5 to +36V)
SENSE 1 2
SENSE 2 3
CURRENT SOURCE 4
8 OUTPUT
GND 7
6 INDICATOR OUTPUT
5 REMOTE ACTIVATION


2
COMP
DRIVER
4
V REF 2.6V
3
COMP
DRIVER
8
IND DRIVER
6
5

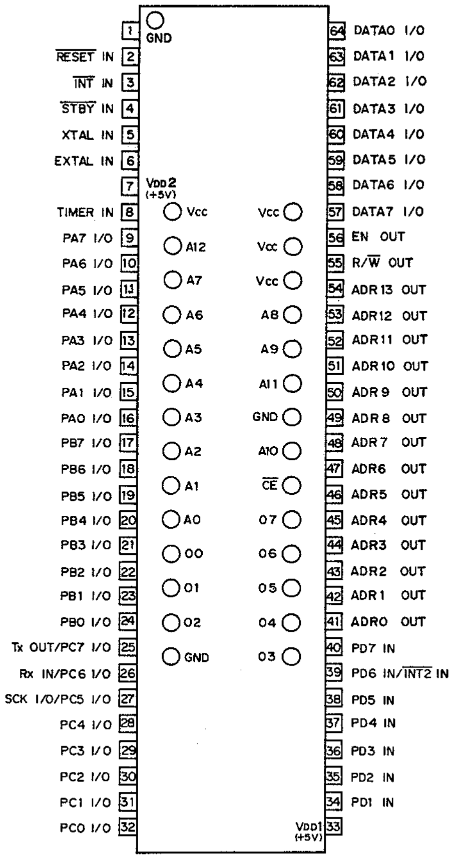
uPC393G2 (NEC) FLAT PACKAGE

VOLTAGE COMPARATOR

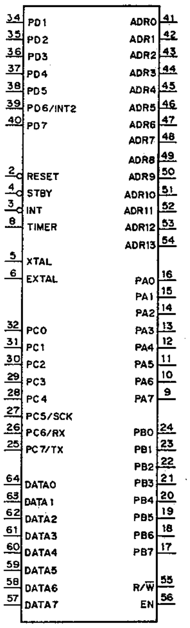
— TOP VIEW —


8
7
6
5
Vcc (2 to 36V)
GND
1
2
3
4

HD63PB05Y1 (HITACHI) (INSTRUCTION CYCLE = 0.5µS ; fCK = 8MHz)
C-MOS 8-BIT MICROCOMPUTER UNIT
— TOP VIEW —

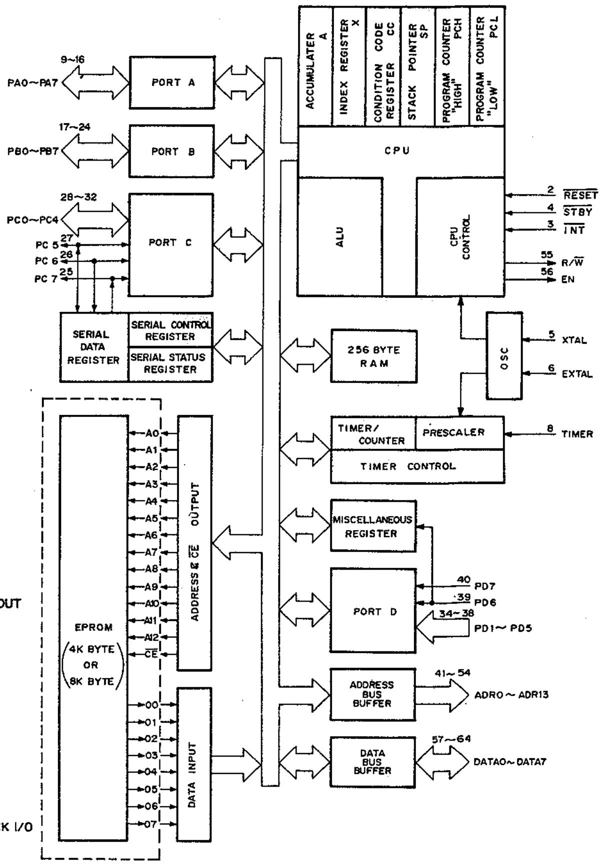


1 GND
RESET IN 2
INT IN 3
STBY IN 4
XTAL IN 5
EXTAL IN 6
7 VDD2 (+5V)
TIMER IN 8
PA7 I/O 9
PA6 I/O 10
PA5 I/O 11
PA4 I/O 12
PA3 I/O 13
PA2 I/O 14
PA1 I/O 15
PA0 I/O 16
PB7 I/O 17
PB6 I/O 18
PB5 I/O 19
PB4 I/O 20
PB3 I/O 21
PB2 I/O 22
PB1 I/O 23
PB0 I/O 24
Tx OUT/PC7 I/O 25
Rx IN/PC6 I/O 26
SCK I/O/PC5 I/O 27
PC4 I/O 28
PC3 I/O 29
PC2 I/O 30
PC1 I/O 31
PC0 I/O 32
VDD1 (+5V) 33
34 PD1 IN
35 PD2 IN
36 PD3 IN
37 PD4 IN
38 PD5 IN
39 PD6 IN/INT2 IN
40 PD7 IN
41 ADR0 OUT
42 ADR1 OUT
43 ADR2 OUT
44 ADR3 OUT
45 ADR4 OUT
46 ADR5 OUT
47 ADR6 OUT
48 ADR7 OUT
49 ADR8 OUT
50 ADR9 OUT
51 ADR10 OUT
52 ADR11 OUT
53 ADR12 OUT
54 ADR13 OUT
55 R/W OUT
56 EN OUT
57 DATA7 I/O
58 DATA6 I/O
59 DATA5 I/O
60 DATA4 I/O
61 DATA3 I/O
62 DATA2 I/O
63 DATA1 I/O
64 DATA0 I/O
Vcc Vcc
A12 Vcc
A7 Vcc
A6 A8
A5 A9
A4 A11
A3 GND
A2 A10
A1 CE
A0 07
00 06
01 05
02 04
GND 03



34 PD1
35 PD2
36 PD3
37 PD4
38 PD5
39 PD6/INT2
40 PD7
2 RESET
4 STBY
3 INT
8 TIMER
5 XTAL
6 EXTAL
32 PC0
31 PC1
30 PC2
29 PC3
28 PC4
27 PC5/SCK
26 PC6/RX
25 PC7/TX
64 DATA0
63 DATA1
62 DATA2
61 DATA3
60 DATA4
59 DATA5
58 DATA6
57 DATA7
ADR0 41
ADR1 42
ADR2 43
ADR3 44
ADR4 45
ADR5 46
ADR6 47
ADR7 48
ADR8 49
ADR9 50
ADR10 51
ADR11 52
ADR12 53
ADR13 54
PA0 16
PA1 15
PA2 14
PA3 13
PA4 12
PA5 11
PA6 10
PA7 9
PB0 24
PB1 23
PB2 22
PB3 21
PB4 20
PB5 19
PB6 18
PB7 17
R/W 55
EN 56

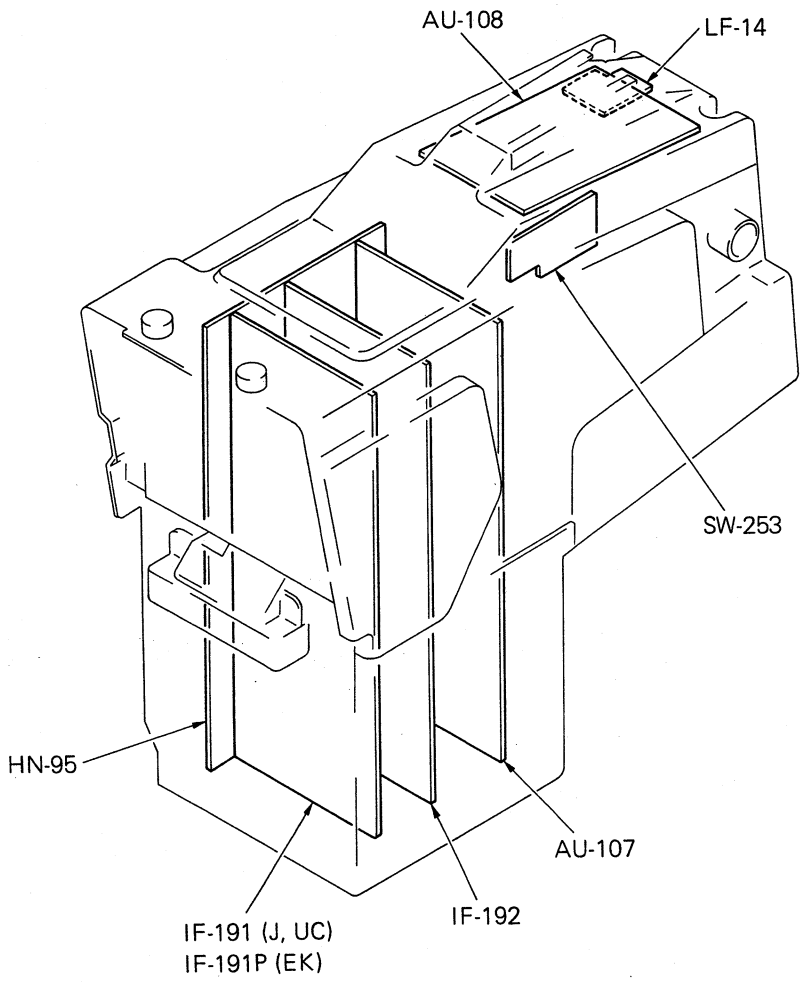
ADR0 ~ ADR13 ; 14-BIT ADDRESS BUS OUT
DATA0 ~ DATA7 ; 8-BIT DATA BUS I/O
PA0 ~ PA7 ; 8-BIT I/O PORT A
PB0 ~ PB7 ; 8-BIT I/O PORT B
PC0 ~ PC7 ; 8-BIT I/O PORT C
PD1 ~ PD7 ; 7-BIT IN PORT D
RESET ; RESET IN
STBY ; STANDBY IN
EN ; ENABLE OUT
R/W ; READ/WRITE OUT
INT ; INTERRUPT IN
INT2 ; INTERRUPT IN
TIMER ; TIMER CONTROL IN
TIMER2 ; TIMER CONTROL IN
XTAL ; CRYSTAL
EXTAL ; EXTERNAL CRYSTAL IN
SCK ; SERIAL INTERFACE CLOCK I/O
RX ; SERIAL DATA RECEIVE
TX ; SERIAL DATA TRANSMIT



ACCUMULATER A
INDEX REGISTER X
CONDITION CODE REGISTER CC
STACK POINTER SP
PROGRAM COUNTER "HIGH" PCH
PROGRAM COUNTER "LOW" PCL
CPU
ALU
CPU CONTROL
2 RESET
4 STBY
3 INT
55 R/W
56 EN
9~16
PA0~PA7
PORT A
17~24
PB0~PB7
PORT B
28~32
PC0~PC4
PC 5 27
PC 6 26
PC 7 25
PORT C
SERIAL DATA REGISTER
SERIAL CONTROL REGISTER
SERIAL STATUS REGISTER
256 BYTE RAM
OSC
5 XTAL
6 EXTAL
TIMER/ COUNTER
PRESCALER
8 TIMER
TIMER CONTROL
MISCELLANEOUS REGISTER
PORT D
40 PD7
39 PD6
34~38
PD1~ PD5
ADDRESS BUS BUFFER
41~54
ADR0~ ADR13
DATA BUS BUFFER
57~64
DATA0~ DATA7
EPROM (4K BYTE OR 8K BYTE)
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
CE
ADDRESS & CE OUTPUT
00
01
02
03
04
05
06
07
DATA INPUT

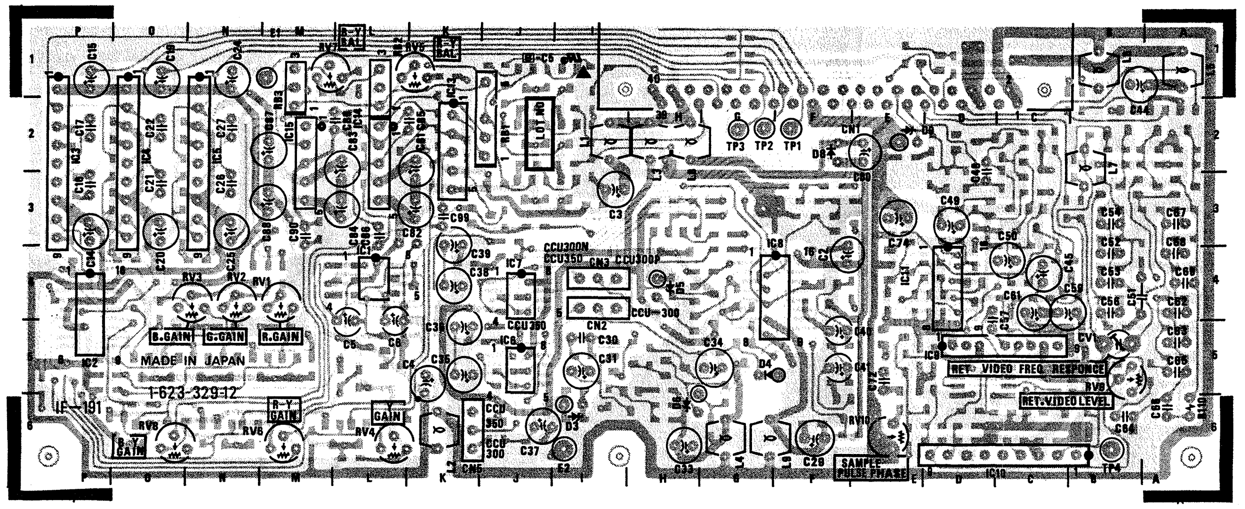
SECTION 7
SCHEMATIC DIAGRAM AND BOARD ILLUSTRATION

BOARD LAYOUT

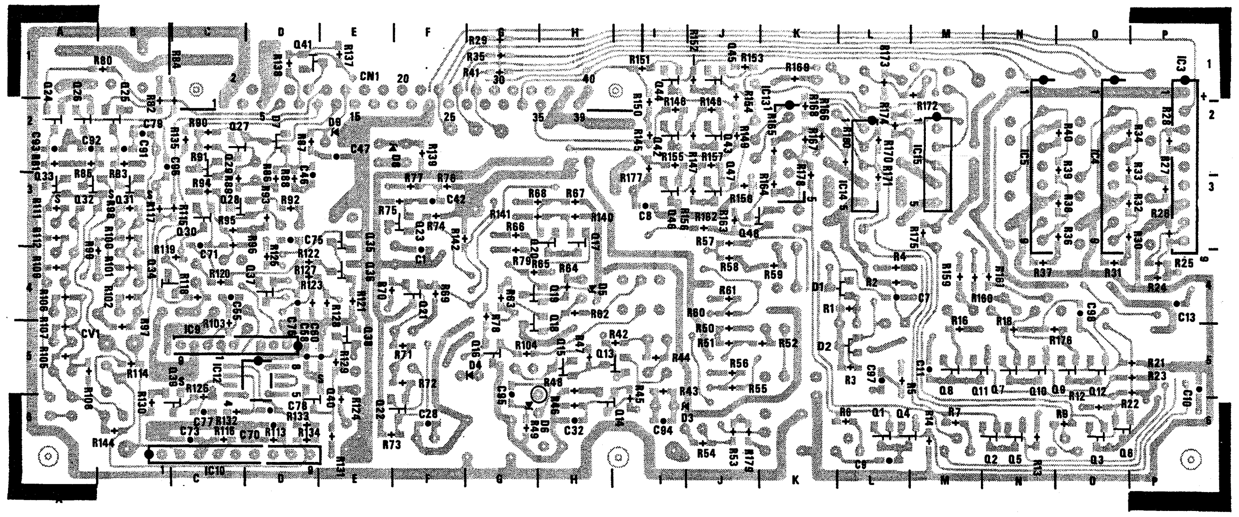

AU-108
LF-14
SW-253
HN-95
AU-107
IF-192
IF-191 (J, UC)
IF-191P (EK)

IF-191/191P BOARD

Ser. No. 10051~10190 (J)
10091~10395 (UC)
10126~10580 (EK)


MADE IN JAPAN
1-623-329-12
IF-191
R.GAIN
G.GAIN
B.GAIN
R-Y GAIN
B-Y GAIN
TP1
TP2
TP3
TP4
RET. VIDEO FREQ. RESPONCE
RET. VIDEO LEVEL
SAMPLE PULSE PHASE

1-623-329-12 COMPONENT SIDE

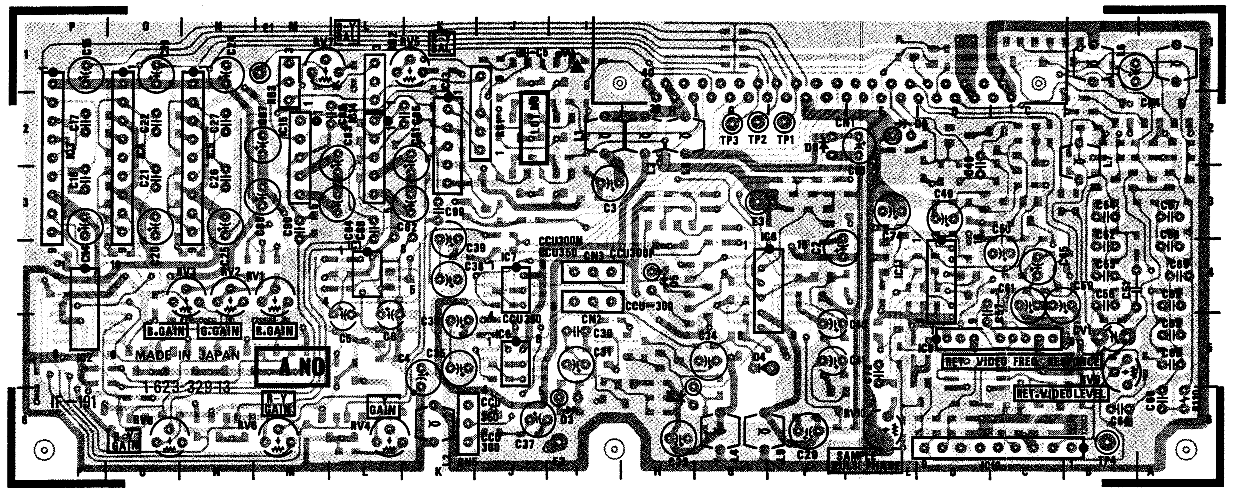


1-623-329-12 SOLDERING SIDE

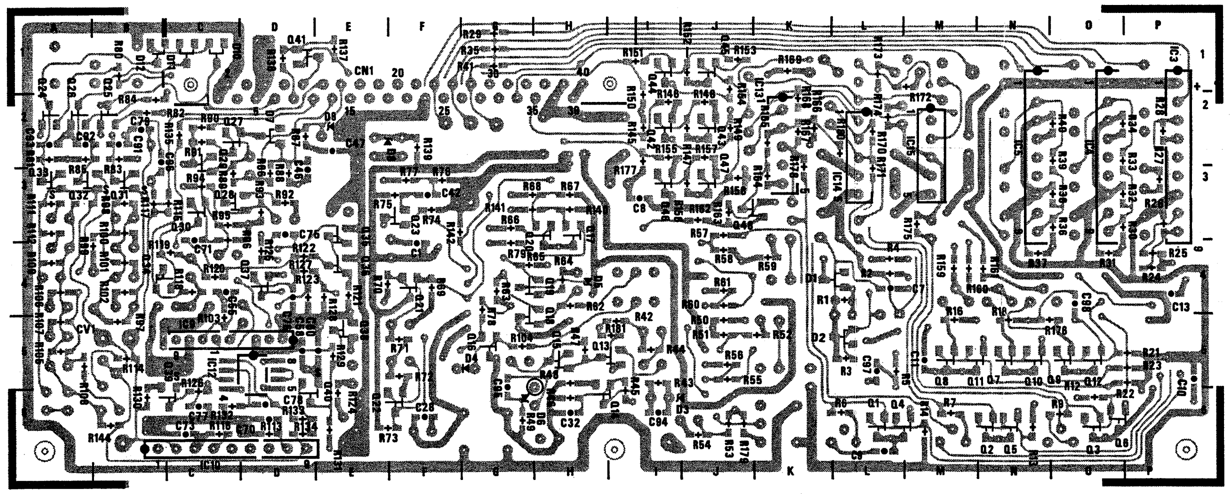
CN1	E-1
CN2	I-4
CN3	I-4
CN5	K-6
CV1	B-5
D1	L-4
D2	L-5
D3	I-6
D4	G-5
D5	H-4
D6	H-6
D7	D-2
D8	E-2
D9	E-2
E1	M-1
E2	I-6
IC1	L-4
IC2	P-4
IC3	P-2
IC4	O-2
IC5	N-2
IC6	J-5
IC7	J-4
IC8	F-4
IC9	C-5
IC10	C-6
IC11	D-4
IC12	D-5
IC13	K-2
IC14	L-2
IC15	M-2
Q1	L-6
Q2	N-6
Q3	O-6
Q4	L-6
Q5	N-6
Q6	O-6
Q7	N-5
Q8	M-5
Q9	O-5
Q10	N-5
Q11	M-5
Q12	O-5
Q13	I-5
Q14	H-6
Q15	H-5
Q16	G-5
Q17	H-3
Q18	G-5
Q19	G-4
Q20	H-3
Q21	F-4
Q22	F-6
Q23	F-3
Q24	A-2
Q25	B-2
Q26	A-2
Q27	C-2
Q28	C-3
Q29	C-2
Q30	C-3
Q31	B-3
Q32	A-3
Q33	A-3
Q34	B-4
Q35	E-3
Q36	E-4
Q37	D-4
Q38	E-5
Q39	C-6
Q40	D-6
Q41	D-1
Q42	I-2
Q43	J-2
Q44	I-1
Q45	J-1
Q46	I-3
Q47	J-3
Q48	J-3
RB1	J-2
RB2	L-1
RB3	M-1
RV1	M-4
RV2	N-4
RV3	N-4
RV4	L-6
RV5	K-1
RV6	M-6
RV7	M-1
RV8	O-6
RV9	B-5
RV10	E-6
TP1	F-2
TP2	G-2
TP3	G-2
TP4	B-6

IF-191/191P BOARD

Ser.No.10191~10285 (J)
10396 and higher (UC)
10581~10910 (EK)



1-623-329-13 COMPONENT SIDE

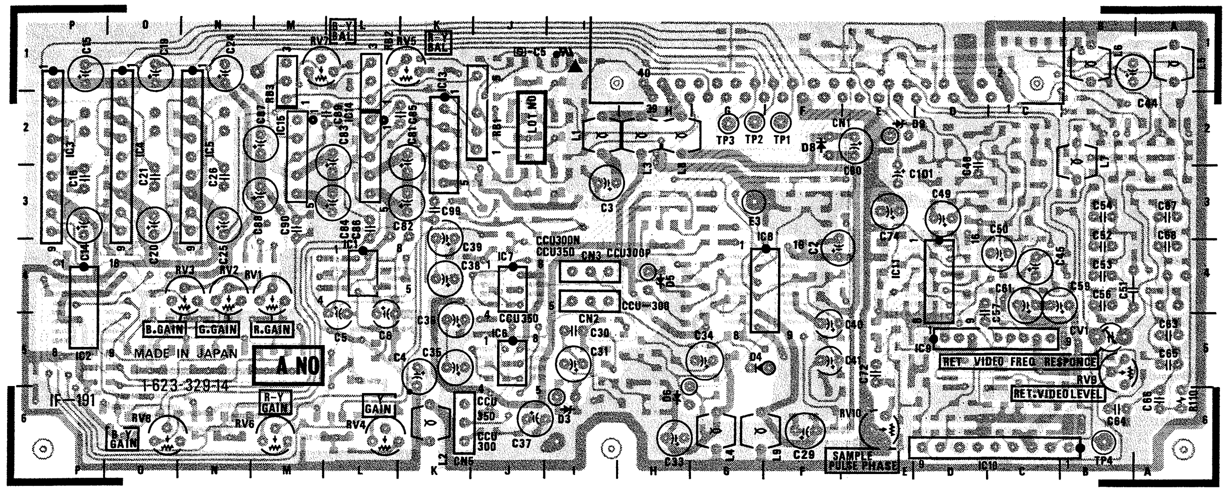


1-623-329-13 SOLDERING SIDE

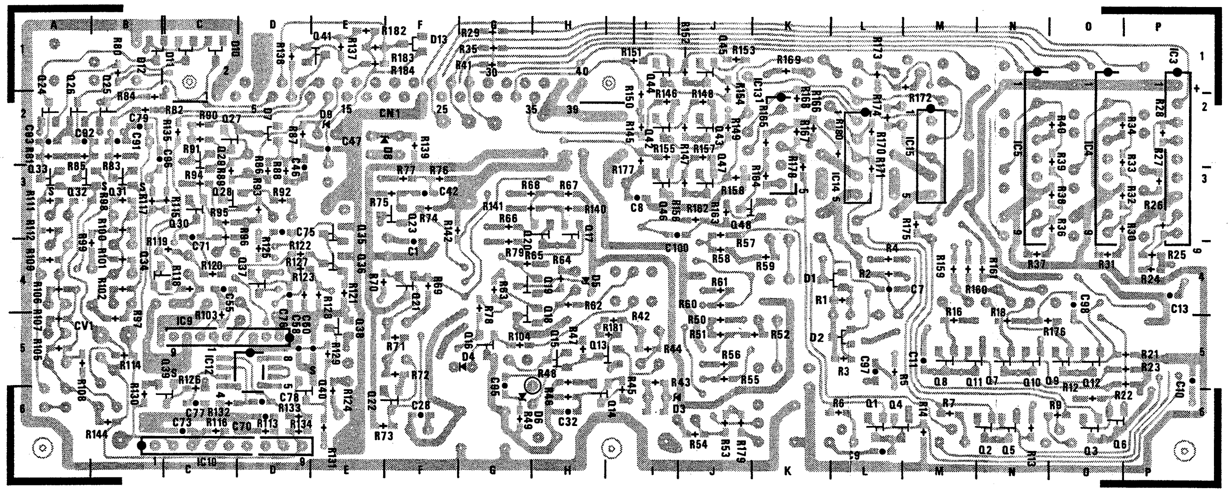
CN1	E-1
CN2	I-4
CN3	I-4
CN5	K-6
CV1	B-5
D1	L-4
D2	L-5
D3	I-6
D4	G-5
D5	H-4
D6	H-6
D7	D-2
D8	E-2
D9	E-2
D10	C-1
D11	C-1
D12	B-1
E1	M-1
E2	I-6
IC1	L-4
IC2	P-4
IC3	P-2
IC4	O-2
IC5	N-2
IC6	J-5
IC7	J-4
IC8	F-4
IC9	C-5
IC10	C-6
IC11	D-4
IC12	D-5
IC13	K-2
IC14	L-2
IC15	M-2
Q1	L-6
Q2	N-6
Q3	O-6
Q4	L-6
Q5	N-6
Q6	O-6
Q7	N-5
Q8	M-5
Q9	O-5
Q10	N-5
Q11	M-5
Q12	O-5
Q13	I-5
Q14	H-6
Q15	H-5
Q16	G-5
Q17	H-3
Q18	G-5
Q19	G-4
Q20	H-3
Q21	F-4
Q22	F-6
Q23	F-3
Q24	A-2
Q25	B-2
Q26	A-2
Q27	C-2
Q28	C-3
Q29	C-2
Q30	C-3
Q31	B-3
Q32	A-3
Q33	A-3
Q34	B-4
Q35	E-3
Q36	E-4
Q37	D-4
Q38	E-5
Q39	C-6
Q40	D-6
Q41	D-1
Q42	I-2
Q43	J-2
Q44	I-1
Q45	J-1
Q46	I-3
Q47	J-3
Q48	J-3
RB1	J-2
RB2	L-1
RB3	M-1
RV1	M-4
RV2	N-4
RV3	N-4
RV4	L-6
RV5	K-1
RV6	M-6
RV7	M-1
RV8	O-6
RV9	B-5
RV10	E-6
TP1	F-2
TP2	G-2
TP3	G-2
TP4	B-6

IF-191/191P BOARD

Ser. No. 10286 and higher (J)
10396 and higher (UC)
10911 and higher (EK)


IF-191
MADE IN JAPAN
1-623-329-14
A NO
B.GAIN
G.GAIN
R.GAIN
R-Y GAIN
B-Y GAIN
Y GAIN
RET. VIDEO FREQ. RESPONCE
RET. VIDEO LEVEL
SAMPLE PULSE PHASE
TP1
TP2
TP3
TP4

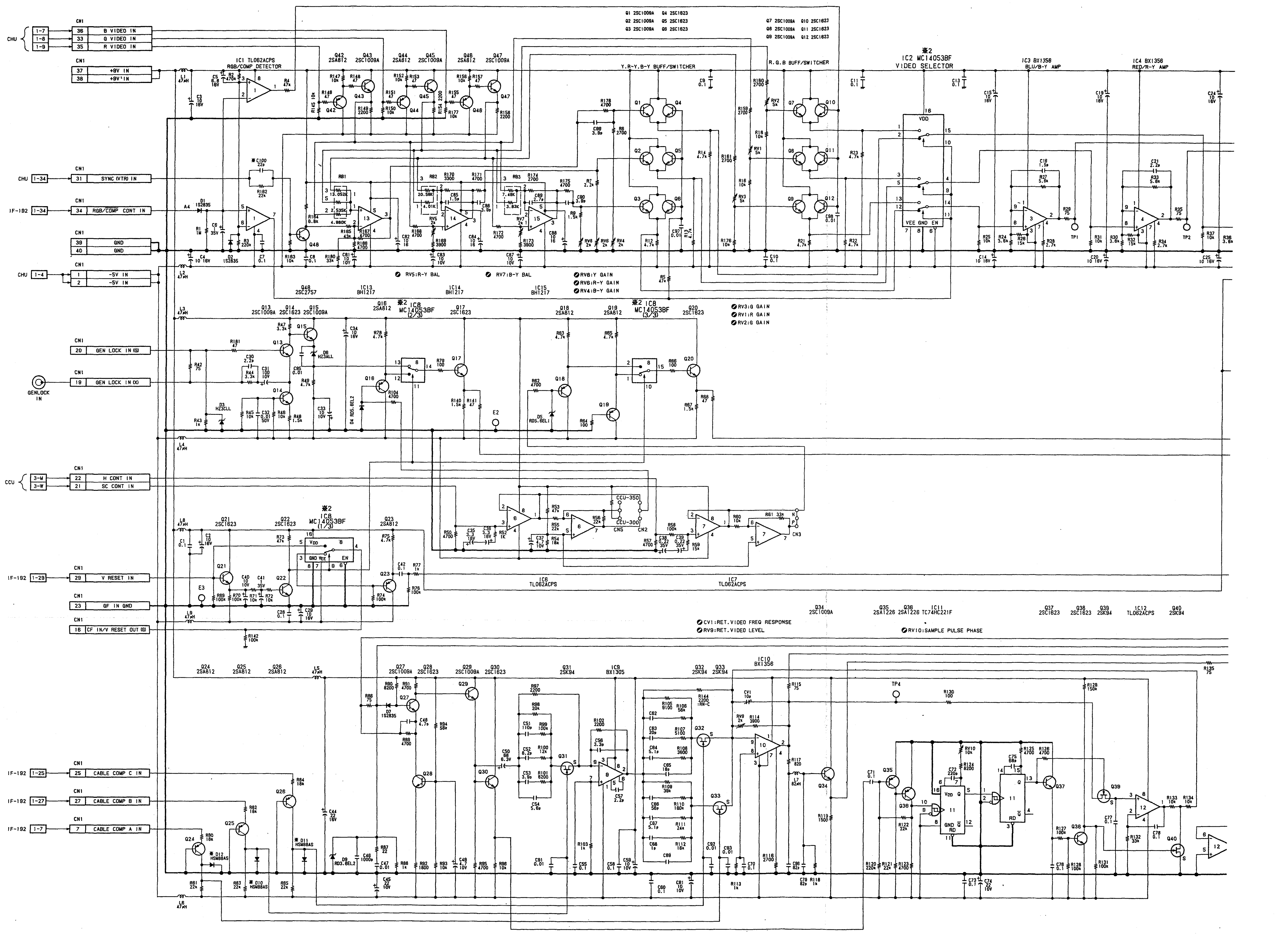
1-623-329-14 COMPONENT SIDE

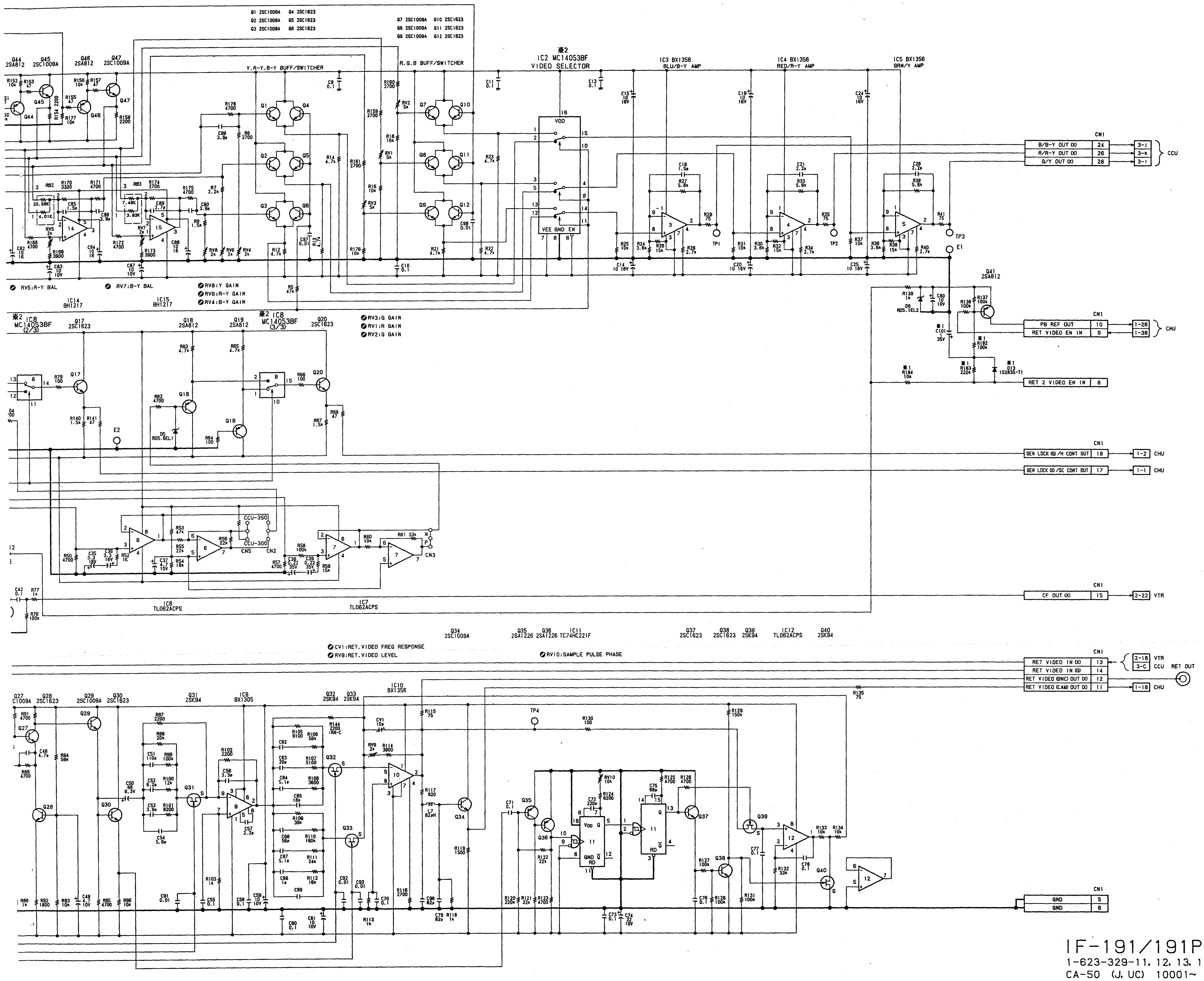


1-623-329-14 SOLDERING SIDE

CN1	E-1	Q11	M-5	RV1	M-4
CN2	I-4	Q12	O-5	RV2	N-4
CN3	I-4	Q13	I-5	RV3	N-4
CN5	K-6	Q14	H-6	RV4	L-6
		Q15	H-5	RV5	K-1
CV1	B-5				
		Q16	G-5	RV6	M-6
D1	L-4	Q17	H-3	RV7	M-1
D2	L-5	Q18	G-5	RV8	O-6
D3	I-6	Q19	G-4	RV9	B-5
D4	G-5	Q20	H-3	RV10	E-6
D5	H-4				
		Q21	F-4	TP1	F-2
D6	H-6	Q22	F-6	TP2	G-2
D7	D-2	Q23	F-3	TP3	G-2
D8	E-2	Q24	A-2	TP4	B-6
D9	E-2	Q25	B-2		
D10	C-1				
		Q26	A-2		
D11	C-1	Q27	C-2		
D12	B-1	Q28	C-3		
D13	F-1	Q29	C-2		
		Q30	C-3		
IC1	L-4				
IC2	P-4	Q31	B-3		
IC3	P-2	Q32	A-3		
IC4	O-2	Q33	A-3		
IC5	N-2	Q34	B-4		
		Q35	E-3		
IC6	J-5				
IC7	J-4	Q36	E-4		
IC8	F-4	Q37	D-4		
IC9	C-5	Q38	E-5		
IC10	C-6	Q39	C-6		
		Q40	D-6		
IC11	D-4				
IC12	D-5	Q41	E-1		
IC13	K-2	Q42	I-2		
IC14	L-2	Q43	J-2		
IC15	M-2	Q44	I-1		
		Q45	J-1		
Q1	L-6				
Q2	N-6	Q46	I-3		
Q3	0-6	Q47	J-3		
Q4	L-6	Q48	J-3		
Q5	N-6				
		RB1	J-2		
Q6	0-6	RB2	L-1		
Q7	N-5	RB3	M-1		
Q8	M-5				
Q9	0-5				
Q10	N-5				

IF-191/191P BOARD

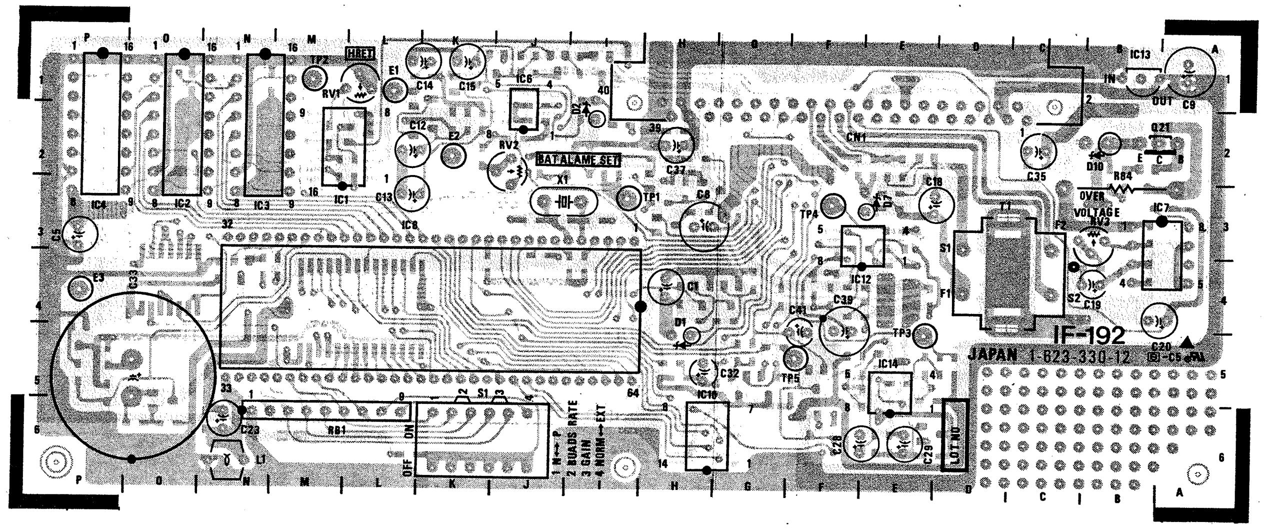

CHU
CN1
B VIDEO IN
G VIDEO IN
R VIDEO IN
+9V IN
+9V' IN
SYNC (VTR) IN
IF-192
RGB/COMP CONT IN
GND
-5V IN
GEN LOCK IN
GENLOCK IN
CCU
H CONT IN
SC CONT IN
V RESET IN
GF IN GND
CF IN/V RESET OUT
CABLE COMP C IN
CABLE COMP B IN
CABLE COMP A IN
IC1 TL062ACPS
RGB/COMP DETECTOR
Y.R-Y.B-Y BUFF/SWITCHER
R.G.B BUFF/SWITCHER
※2
IC2 MC14053BF
VIDEO SELECTOR
IC3 BX1356
BLU/B-Y AMP
IC4 BX1356
RED/R-Y AMP
RV5:R-Y BAL
RV7:B-Y BAL
RV6:Y GAIN
RV8:R-Y GAIN
RV4:B-Y GAIN
RV3:G GAIN
RV1:R GAIN
RV2:G GAIN
IC13 BH1217
IC14 BH1217
IC15 BH1217
IC8 MC14053BF
IC6 TL062ACPS
IC7 TL062ACPS
CCU-350
CCU-300
CV1:RET.VIDEO FREQ RESPONSE
RV9:RET.VIDEO LEVEL
RV10:SAMPLE PULSE PHASE
IC9 BX1305
IC10 BX1356
IC11 TC74HC221F
IC12 TL062ACPS
TP1
TP2
TP4
E2
E3


Y.R-Y.B-Y BUFF/SWITCHER
R.G.B BUFF/SWITCHER
※2 IC2 MC14053BF VIDEO SELECTOR
IC3 BX1356 BLU/B-Y AMP
IC4 BX1356 RED/R-Y AMP
IC5 BX1356 GRN/Y AMP
IC14 BH1217
IC15 BH1217
RV5:R-Y BAL
RV7:B-Y BAL
RV8:Y GAIN
RV6:R-Y GAIN
RV4:B-Y GAIN
RV3:G GAIN
RV1:R GAIN
RV2:G GAIN
※2 IC8 MC14053BF (2/3)
※2 IC8 MC14053BF (3/3)
IC6 TL062ACPS
IC7 TL062ACPS
CCU-350
CCU-300
CV1:RET.VIDEO FREQ RESPONSE
RV9:RET.VIDEO LEVEL
RV10:SAMPLE PULSE PHASE
IC9 BX1305
IC10 BX1356
IC11 TC74HC221F
IC12 TL062ACPS
CN1
B/B-Y OUT (X)
R/R-Y OUT (X)
G/Y OUT (X)
CCU
PB REF OUT
RET VIDEO EN IN
CHU
RET 2 VIDEO EN IN
GEN LOCK (G)/H CONT OUT
GEN LOCK (X)/SC CONT OUT
CF OUT (X)
VTR
RET VIDEO IN (X)
RET VIDEO IN (G)
RET VIDEO (BNC) OUT (X)
RET VIDEO (CAM) OUT (X)
RET OUT
GND
TP1
TP2
TP3
TP4
E1
E2

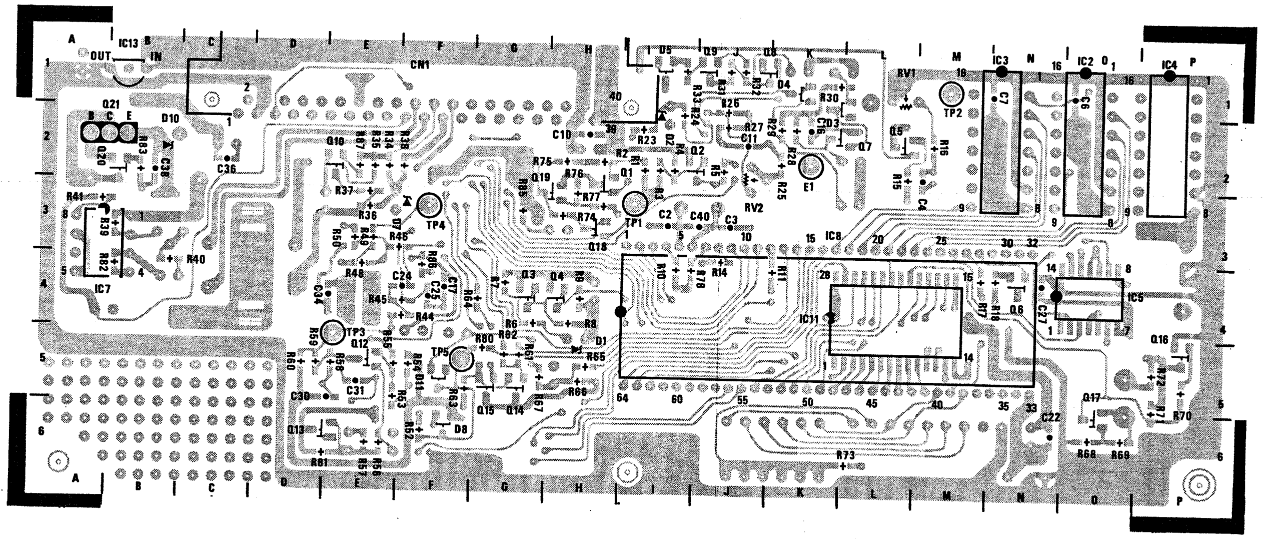
MARK	REF.NO.	CHANGE INFORMATION	SERIAL NO.
※	C100	22pF → ADD	10191~ (J) 10396~ (UC) 10581~ (EK)
	D10 D11 D12	HSM88AS → ADD	
※1	C101 D13 R182 R183 R184	1μF 35V 1S2835 100K 220K 10K ADD	10286~ (J) 10396~ (UC) 10911~ (EK)
※2	IC2 IC8	TC4053BF ↓ MC14053BF	10345~ (J) 10476~ (UC) 11051~ (EK)

IF-191/191P BOARD
1-623-329-11, 12, 13, 14
CA-50 (J, UC) 10001~
CA-50P (EK) 10001~

IF-192 BOARD



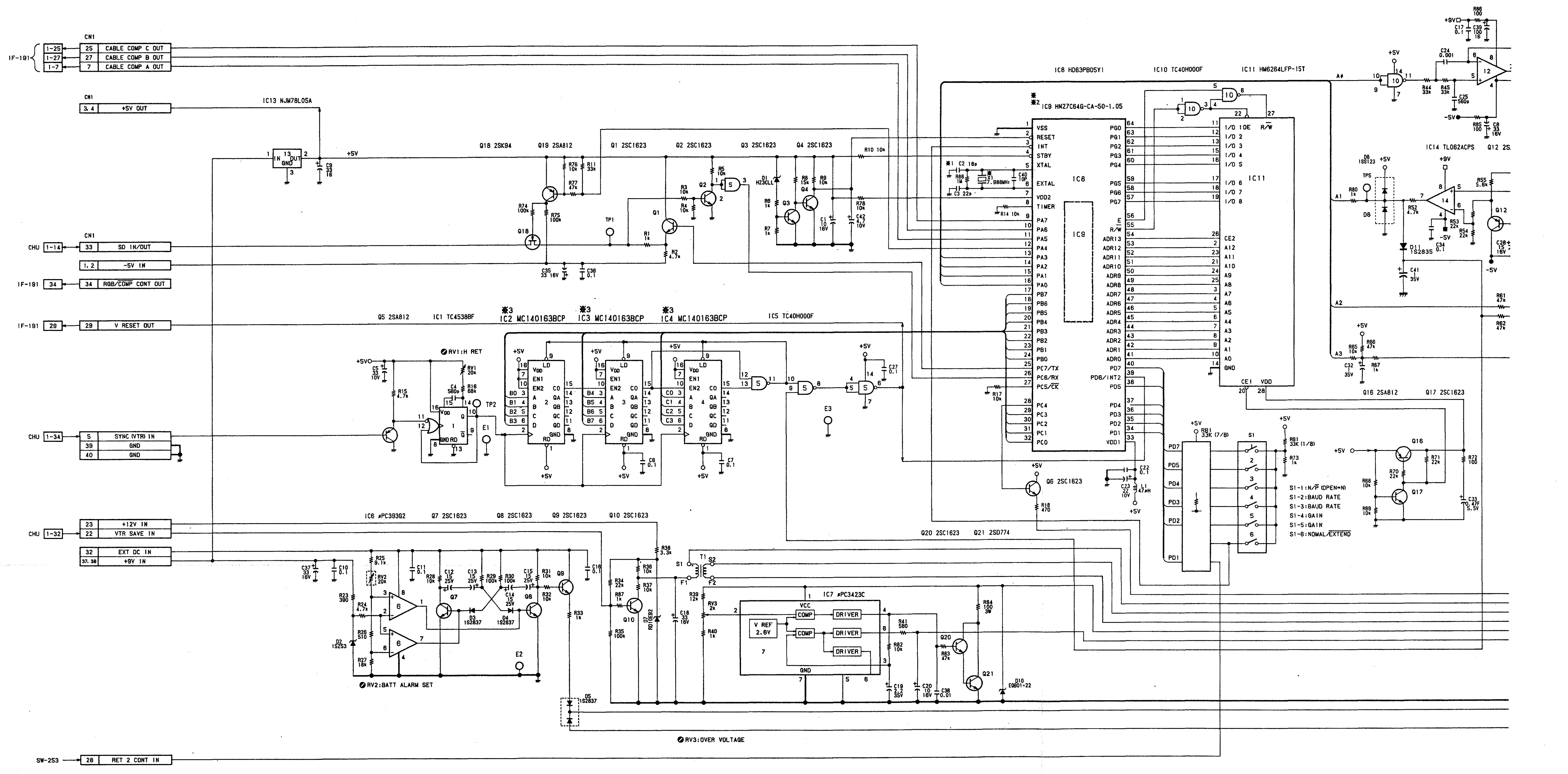
1-623-330-12 COMPONENT SIDE

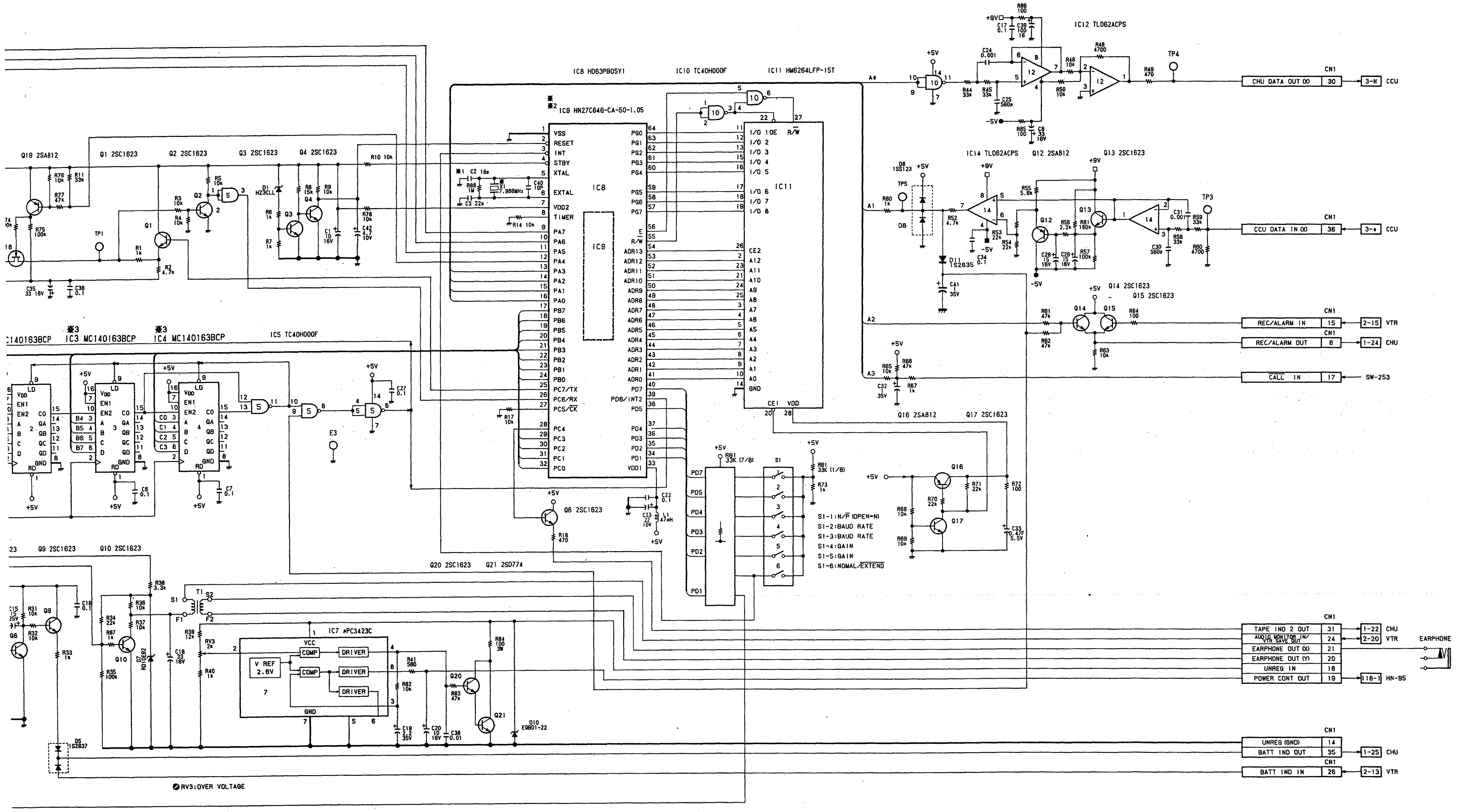


1-623-330-12 SOLDERING SIDE

CN1	F-1
D1	H-5
D2	I-2
D3	K-1
D4	K-1
D5	I-1
D7	F-3
D8	F-6
D10	B-2
D11	F-5
E1	L-1
E2	K-2
E3	P-4
IC1	M-2
IC2	O-2
IC3	N-2
IC4	P-2
IC5	O-4
IC6	J-2
IC7	A-3
IC8	L-4
IC10	H-6
IC11	L-4
IC12	E-4
IC13	B-1
IC14	E-5
Q1	H-2
Q2	I-2
Q3	G-4
Q4	H-4
Q5	L-2
Q6	N-4
Q7	K-2
Q8	J-1
Q9	J-1
Q10	E-2
Q12	E-5
Q13	D-6
Q14	G-5
Q15	G-5
Q16	P-5
Q17	O-5
Q18	H-3
Q19	H-3
Q20	B-2
Q21	A-2
RB1	M-6
RV1	L-1
RV2	J-2
RV3	B-3
S1	K-6
T1	D-3
TP1	I-3
TP2	M-1
TP3	E-5
TP4	F-3
TP5	F-5
X1	J-3

IF-192 BOARD


IF-191
1-25
1-27
1-7
CN1
25 CABLE COMP C OUT
27 CABLE COMP B OUT
7 CABLE COMP A OUT
3, 4 +5V OUT
IC13 NJM78L05A
+5V
C9 33 16
CHU 1-14
33 SD IN/OUT
1, 2 -5V IN
IF-191 34
34 RGB/COMP CONT OUT
IF-191 29
29 V RESET OUT
CHU 1-34
5 SYNC (VTR) IN
39 GND
40 GND
CHU 1-32
23 +12V IN
22 VTR SAVE IN
32 EXT DC IN
37, 38 +9V IN
SW-253
28 RET 2 CONT IN
Q18 2SK94
Q19 2SA812
Q1 2SC1623
Q2 2SC1623
Q3 2SC1623
Q4 2SC1623
R74 100k
R75 100k
R76 10k
R77 47k
R11 33k
C35 33 16V
C36 0.1
TP1
R1 1k
R2 4.7k
R3 10k
R4 10k
R5 10k
R6 1k
R7 1k
R8 15k
R9 10k
R10 10k
R78 10k
Q1 MC3OLL
C1 10 16V
C42 4.7 10V
Q5 2SA812
IC1 TC4538BF
✻3 IC2 MC140163BCP
✻3 IC3 MC140163BCP
✻3 IC4 MC140163BCP
IC5 TC40H000F
RV1:H RET
RV1 20k
C4 560p
R16 68k
R15 4.7k
C5 33 10V
TP2
E1
E3
C27 0.1
C6 0.1
C7 0.1
IC6 μPC393G2
Q7 2SC1623
Q8 2SC1623
Q9 2SC1623
Q10 2SC1623
R25 9.1k
RV2 20k
R23 390
R24 4.7k
R26 510
R27 18k
D2 1SZ53
C37 33 16V
C10 0.1
C11 0.1
R28 10k
C12 15 25V
C13 15 25V
R29 100k
R30 100k
C14 15 25V
C15 15 25V
R31 10k
R32 10k
R33 1k
C16 0.1
D3 1S2837
D4 1S2837
E2
RV2:BATT ALARM SET
D5 1S2837
R38 3.3k
R34 22k
R35 100k
R36 10k
R37 10k
R87 1k
D7 RD10EB2
S1
T1
F1
F2
R39 12k
C18 33 16V
R40 1k
R3 2k
IC7 μPC3423C
VCC
V REF 2.6V
COMP
DRIVER
GND
R41 560
R82 10k
R83 47k
R84 100 3W
Q20
Q21
D10 EG01-22
C19 2.2 35V
C20 10 16V
C38 0.01
RV3:OVER VOLTAGE
Q20 2SC1623
Q21 2SD774
IC8 HD63PB05Y1
IC10 TC40H000F
IC11 HM6264LFP-15T
✻2 IC9 HN27C64G-CA-50-1.05
✻1 C2 18p
R88 1M
✻ X1 7.988MHz
C40 10P
C3 22p
R14 10k
R17 10k
VSS
RESET
INT
STBY
XTAL
EXTAL
VDD2
TIMER
PA7
PA6
PA5
PA4
PA3
PA2
PA1
PA0
PB7
PB6
PB5
PB4
PB3
PB2
PB1
PB0
PC7/TX
PC6/RX
PC5/CK
PC4
PC3
PC2
PC1
PC0
PG0
PG1
PG2
PG3
PG4
PG5
PG6
PG7
E
R/W
ADR13
ADR12
ADR11
ADR10
ADR9
ADR8
ADR7
ADR6
ADR5
ADR4
ADR3
ADR2
ADR1
ADR0
PD7
PD6/INT2
PD5
PD4
PD3
PD2
PD1
VDD1
IC8
IC9
I/O 1OE
I/O 2
I/O 3
I/O 4
I/O 5
I/O 6
I/O 7
I/O 8
R/W
IC11
CE2
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
GND
CE1
VDD
Q6 2SC1623
R18 470
C22 0.1
C23 22 10V
L1 47μH
RB1 33K (7/8)
RB1 33K (1/8)
R73 1k
PD7
PD5
PD4
PD3
PD2
PD1
S1-1:N/P (OPEN=N)
S1-2:BAUD RATE
S1-3:BAUD RATE
S1-4:GAIN
S1-5:GAIN
S1-6:NOMAL/EXTEND
Q16 2SA812
Q17 2SC1623
Q16
Q17
R68 10k
R69 10k
R70 22k
R71 22k
R72 100
C33 0.47F 5.5V
A0
A1
A2
A3
R86 100
+9V
C17 0.1
C39 100 16
C24 0.001
R44 33k
R45 33k
C25 560p
R85 100
C8 33 16V
IC14 TL062ACPS
Q12 2S
D8 1SS123
TP5
R80 1k
D8
R52 4.7k
R53 22k
R54 22k
R55 5.8k
C34 0.1
D11 1S2835
C41 1 35V
Q12
C28 15 16V
R61 47k
R62 47k
R65 10k
R66 47k
R67 1k
C32 1 35V
+5V
-5V
+9V

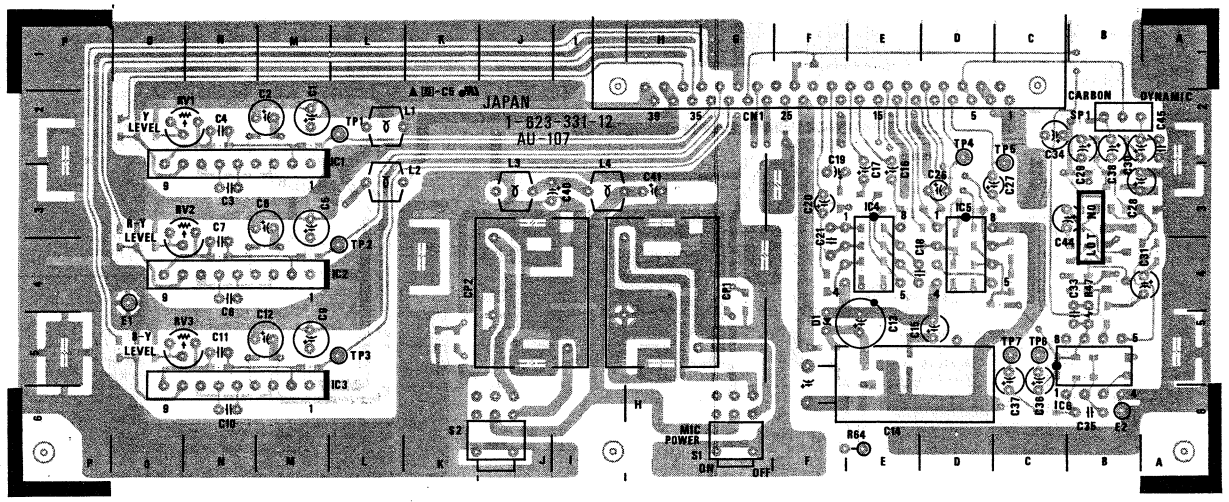

IC8 HD63PB05Y1
IC10 TC40H000F
IC11 HM6264LFP-15T
※2 IC9 HN27C64G-CA-50-1.05
IC12 TL062ACPS
IC14 TL062ACPS
Q12 2SA812
Q13 2SC1623
Q14 2SC1623
Q15 2SC1623
Q16 2SA812
Q17 2SC1623
Q19 2SA812
Q1 2SC1623
Q2 2SC1623
Q3 2SC1623
Q4 2SC1623
※3 IC3 MC140163BCP
※3 IC4 MC140163BCP
IC5 TC40H000F
Q6 2SC1623
Q9 2SC1623
Q10 2SC1623
Q20 2SC1623
Q21 2SD774
IC7 μPC3423C
V REF 2.6V
COMP
DRIVER
D10 EQB01-22
RV3:OVER VOLTAGE
S1-1:N/F (OPEN=N)
S1-2:BAUD RATE
S1-3:BAUD RATE
S1-4:GAIN
S1-5:GAIN
S1-6:NOMAL/EXTEND
CN1
CHU DATA OUT OO 30 3-N CCU
CCU DATA IN OO 36 3-A CCU
REC/ALARM IN 15 2-15 VTR
REC/ALARM OUT 6 1-24 CHU
CALL IN 17 SW-253
TAPE IND 2 OUT 31 1-22 CHU
AUDIO MONITOR IN/VTR MUTE OUT 24 2-20 VTR
EARPHONE OUT (O) 21
EARPHONE OUT (Y) 20
UNREG IN 18
POWER CONT OUT 19 18-1 HN-95
EARPHONE
UNREG (GND) 14
BATT IND OUT 35 1-25 CHU
BATT IND IN 26 2-13 VTR
TP1
TP3
TP4
TP5
E3
+5V
+9V
-5V

NOTE

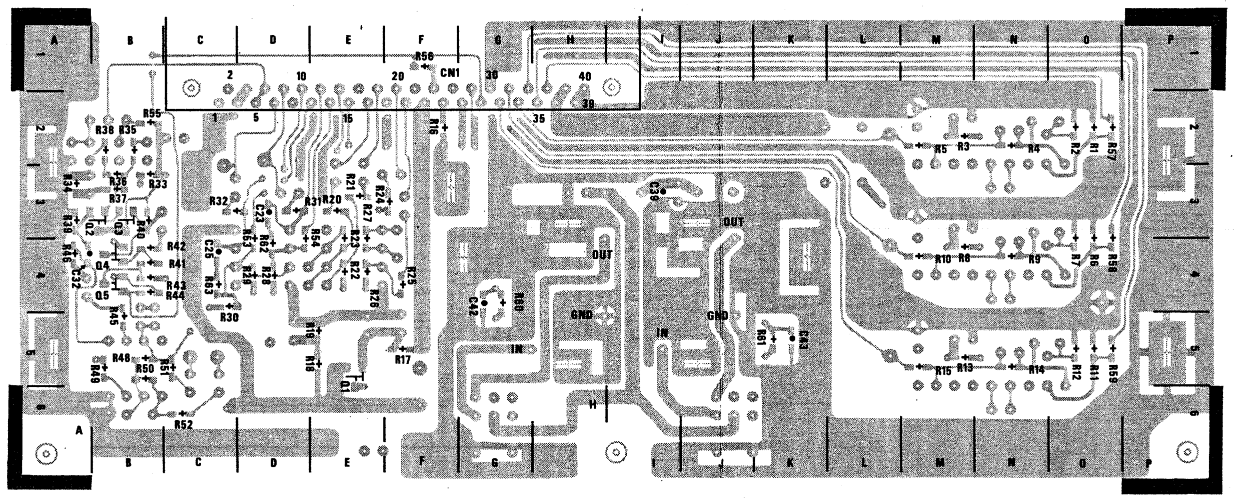
MARK	CHANGE INFORMATION	SERIAL NO.
※	IC9 HN27C64G-CA-50-1.03 ↓ HN27C64G-CA-50-1.04	10176~ (J) 10301~ (UC) 10316~ (EK)
※1	C2 36pF → 18pF X1 8MHz → 7.986MHz	10191~ (J) 10396~ (UC) 10551~ (EK)
※2	IC9 HN27C64G-CA-50-1.04 ↓ HN27C64G-CA-50-1.05	10286~ (J) 10396~ (UC) 10911~ (EK)
※3	IC2, 3, 4 TC40163BP ↓ MC140163BCP	10346~ (J) 10476~ (UC) 11051~ (EK)

IF-192 BOARD
1-623-330-12
CA-50 (J, UC) 10001~
CA-50P (EK) 10126~

AU-107 BOARD


JAPAN
1-623-331-12
AU-107
Y LEVEL
R-Y LEVEL
B-Y LEVEL
RV1
RV2
RV3
IC1
IC2
IC3
IC4
IC5
IC6
TP1
TP2
TP3
TP4
TP5
TP6
TP7
CN1
CP2
CARBON
DYNAMIC
SP1
MIC POWER
S1
S2
ON
OFF
R64
C14
E1
E2

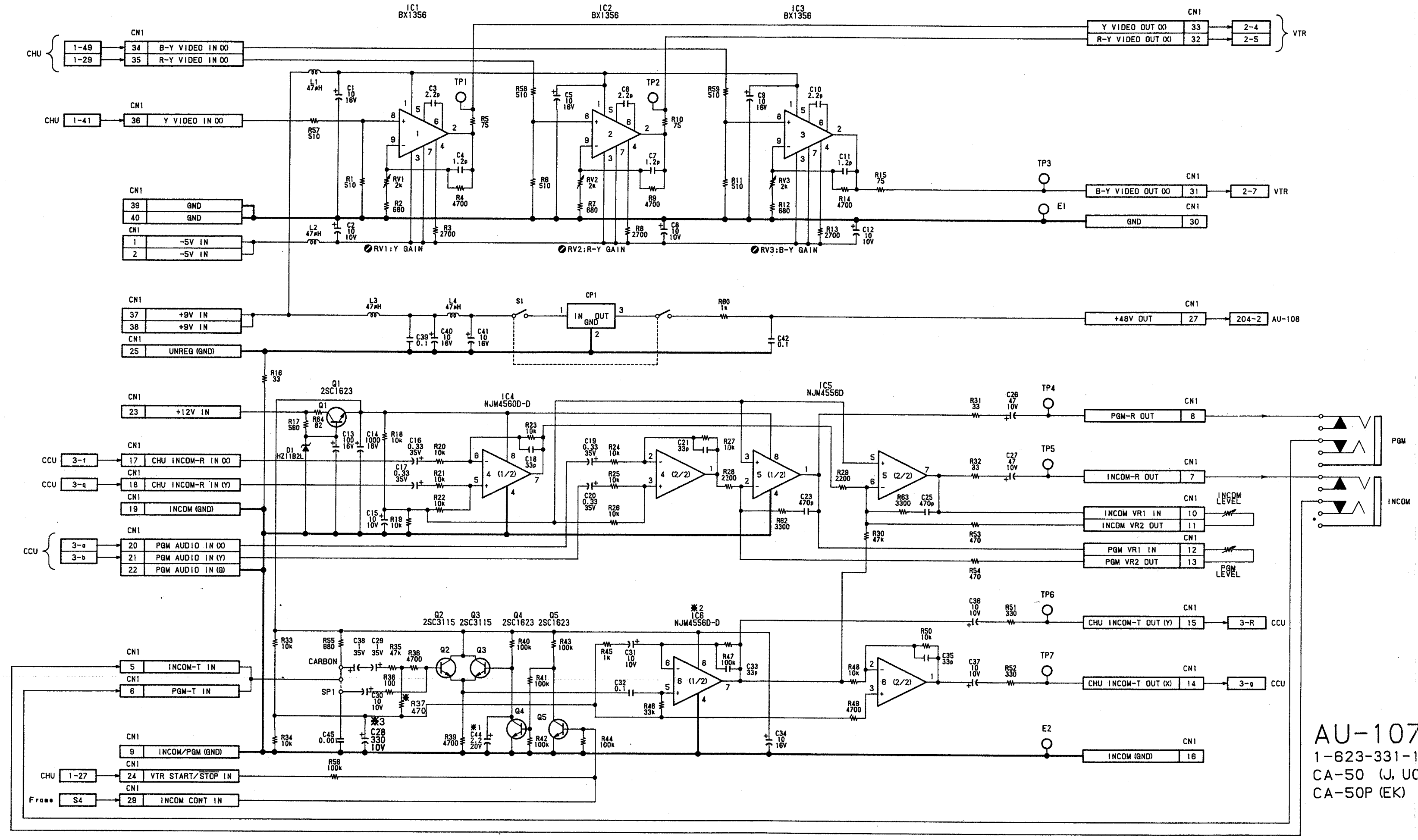
1-623-331-12 COMPONENT SIDE


CN1
OUT
IN
GND
OUT
IN
GND

1-623-331-12 SOLDERING RIDE

CN1	F-1
CP1	H-4
CP2	J-4
D1	F-5
E1	O-4
E2	B-6
IC1	N-3
IC2	N-4
IC3	N-5
IC4	E-4
IC5	D-4
IC6	B-5
Q1	E-5
Q2	B-3
Q3	B-3
Q4	B-4
Q5	B-4
RV1	O-2
RV2	O-3
RV3	O-5
S1	G-6
S2	J-6
SP1	B-2
TP1	L-2
TP2	L-4
TP3	L-5
TP4	D-2
TP5	C-2
TP6	C-5
TP7	C-5

AU-107 BOARD

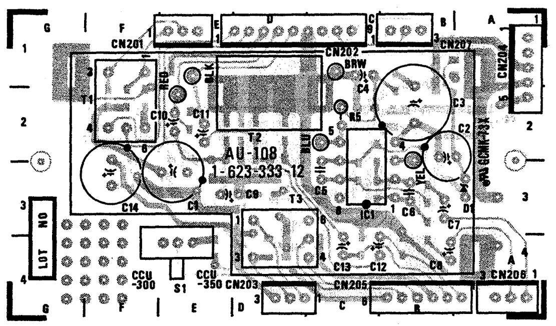

IC1 BX1356
IC2 BX1356
IC3 BX1356
CHU
1-49
1-29
CN1
34 B-Y VIDEO IN (X)
35 R-Y VIDEO IN (X)
1-41
36 Y VIDEO IN (X)
39 GND
40 GND
1 -5V IN
2 -5V IN
37 +9V IN
38 +9V IN
25 UNREG (GND)
23 +12V IN
CCU
3-f
17 CHU INCOM-R IN (X)
3-q
18 CHU INCOM-R IN (Y)
19 INCOM (GND)
3-a
3-b
20 PGM AUDIO IN (X)
21 PGM AUDIO IN (Y)
22 PGM AUDIO IN (G)
5 INCOM-T IN
6 PGM-T IN
9 INCOM/PGM (GND)
1-27
24 VTR START/STOP IN
Frame
S4
29 INCOM CONT IN
RV1: Y GAIN
RV2: R-Y GAIN
RV3: B-Y GAIN
TP1
TP2
TP3
E1
CP1
IN OUT GND
S1
IC4 NJM4560D-D
IC5 NJM4556D
Q1 2SC1623
D1 HZ11B2L
Q2 2SC3115
Q3 2SC3115
Q4 2SC1623
Q5 2SC1623
CARBON
SP1
※2 IC6 NJM4556D-D
Y VIDEO OUT (X) 33
R-Y VIDEO OUT (X) 32
2-4
2-5
VTR
B-Y VIDEO OUT (X) 31
2-7
GND 30
+48V OUT 27
204-2
AU-108
TP4
PGM-R OUT 8
TP5
INCOM-R OUT 7
INCOM VR1 IN 10
INCOM VR2 OUT 11
INCOM LEVEL
PGM VR1 IN 12
PGM VR2 OUT 13
PGM LEVEL
TP6
CHU INCOM-T OUT (Y) 15
3-R
TP7
CHU INCOM-T OUT (X) 14
3-g
E2
INCOM (GND) 16
PGM
INCOM

NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
※	R37 1500 → 470	10101~ (J) 10106~ (UC) 10056~ (EK)
※ 1	C44 0.47 35V → 2.2 20V	10216~ (J) 10396~ (UC) 10641~ (EK)
※ 2	IC6 NJM4556D ↓ NJM4556D-D	10286~ (J) 10396~ (UC) 10911~ (EK)
※ 3	C28 47 10V → 330 10V	10346~ (J) 10546~ (UC) 11151~ (EK)

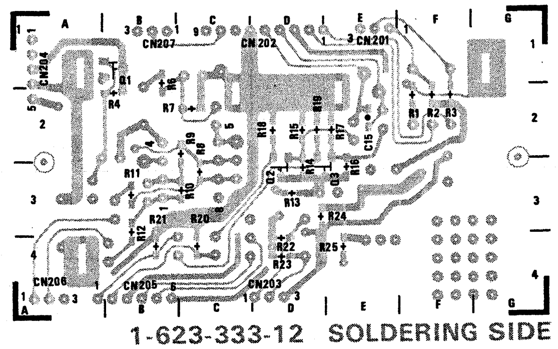
AU-107 BOARD
1-623-331-12
CA-50 (J, UC) 10001~
CA-50P (EK) 10126~

AU-108 BOARD


CN201
CN202
CN203
CN204
CN205
CN206
CN207
AU-108
1-623-333-12
T1
T2
T3
IC1
S1
D1
C1
C2
C3
C4
C6
C7
C8
C12
C13
C14
CCU-300
CCU-350
OUT
NO
A
B
C
D
E
F
G
1
2
3
4

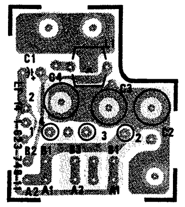
1-623-333-12 COMPONENT SIDE

CN201	E-1
CN202	D-1
CN203	D-4
CN204	A-1
CN205	B-4
CN206	A-4
CN207	B-1
D1	A-3
IC1	C-3
Q1	B-1
Q2	D-3
Q3	D-3
S1	E-4
T1	F-2
T2	D-2
T3	D-4

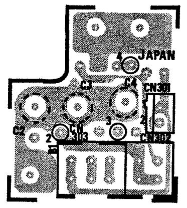

CN201
CN202
CN203
CN204
CN205
CN206
CN207
Q1
R1
R2
R3
R4
R7
R11
R12
R13
R20
R21
R22
R23
R24
R25
A
B
C
D
E
F
G
1
2
3
4

1-623-333-12 SOLDERING SIDE

LF-14 BOARD

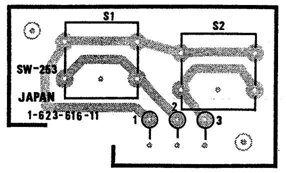

C1
C4
C3
S2
A1
A2
A3

1-623-748-11 COMPONENT SIDE


JAPAN
C4
CN301
C3
C2

1-623-748-11 SOLDERING SIDE

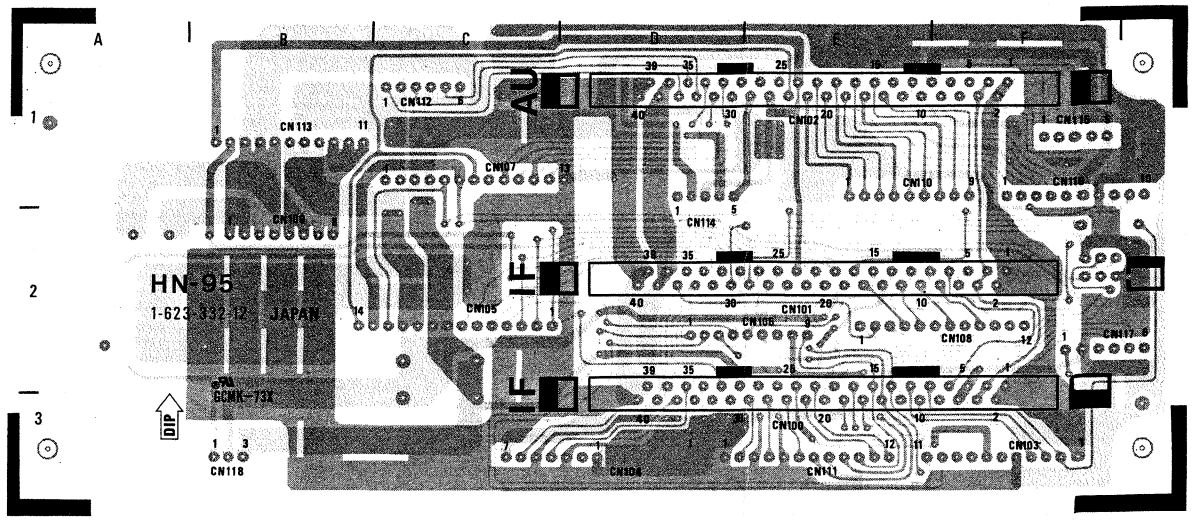
SW-253 BOARD


S1
S2
SW-253
JAPAN
1-623-616-11
1
2
3

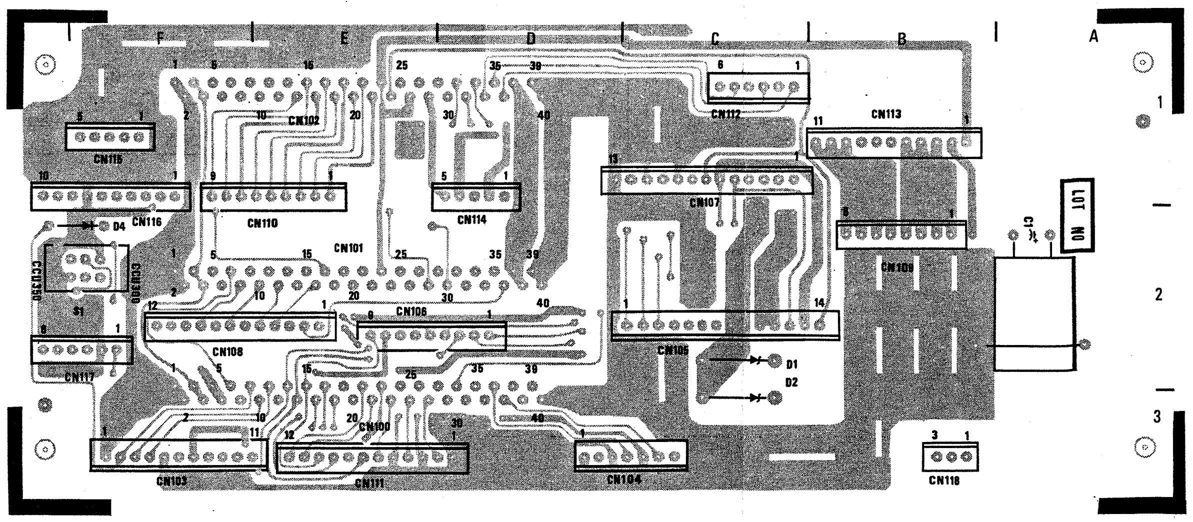
1-623-616-11 COMPONENT SIDE

Ser.No. 10051~10285 (J)
10091~10395 (UC)
10021~10910 (EK)

HN-95 BOARD

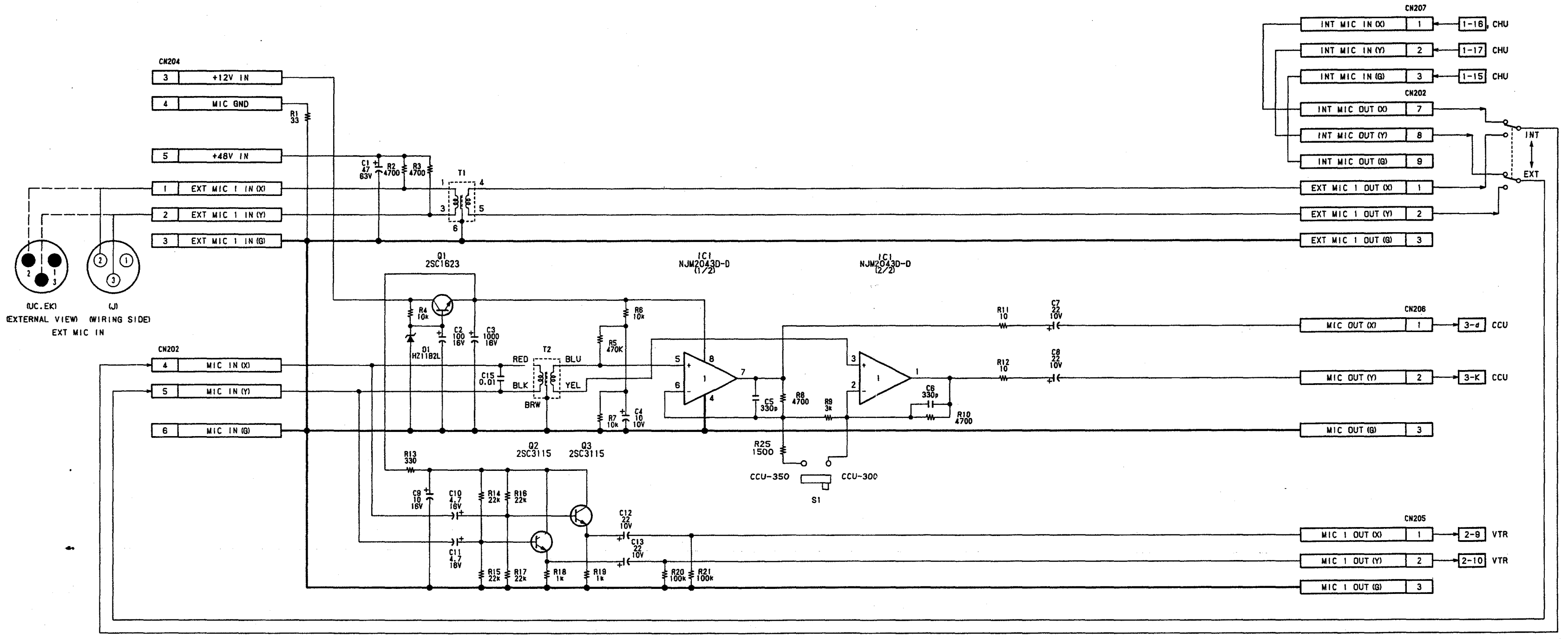

A
B
C
D
E
F
1
2
3
AU
LF
LF
HN-95
1-623-332-12 JAPAN
DIP
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN110
CN111
CN112
CN113
CN114
CN115
CN116
CN117
CN118

1-623-332-12 COMPONENT SIDE


A
B
C
D
E
F
1
2
3
LOT NO
CN100
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN109
CN110
CN111
CN112
CN113
CN114
CN115
CN116
CN117
CN118
D1
D2
D4
S1

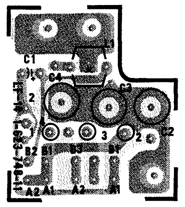
1-623-332-12 SOLDERING SIDE

AU-108 BOARD

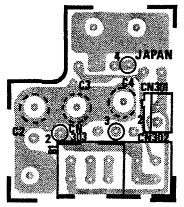

CN204
3
+12V IN
4
MIC GND
5
+48V IN
1
EXT MIC 1 IN (X)
2
EXT MIC 1 IN (Y)
3
EXT MIC 1 IN (G)
R1 33
C1 47 63V
R2 4700
R3 4700
T1
1
4
3
5
6
(UC.EK)
(EXTERNAL VIEW)
(J)
(WIRING SIDE)
EXT MIC IN
CN202
4
MIC IN (X)
5
MIC IN (Y)
6
MIC IN (G)
Q1 2SC1623
R4 10k
D1 HZ11B2L
C2 100 16V
C3 1000 16V
C15 0.01
T2
RED
BLK
BRW
BLU
YEL
R5 470K
R6 10k
R7 10k
C4 10 10V
IC1 NJM2043D-D (1/2)
IC1 NJM2043D-D (2/2)
C5 330p
R8 4700
R9 3k
R25 1500
C6 330p
R10 4700
CCU-350
CCU-300
S1
R11 10
R12 10
C7 22 10V
C8 22 10V
R13 330
Q2 2SC3115
Q3 2SC3115
C9 10 16V
C10 4.7 16V
C11 4.7 16V
R14 22k
R16 22k
R15 22k
R17 22k
R18 1k
R19 1k
C12 22 10V
C13 22 10V
R20 100k
R21 100k
CN207
INT MIC IN (X) 1
1-16 CHU
INT MIC IN (Y) 2
1-17 CHU
INT MIC IN (G) 3
1-15 CHU
CN202
INT MIC OUT (X) 7
INT MIC OUT (Y) 8
INT MIC OUT (G) 9
EXT MIC 1 OUT (X) 1
EXT MIC 1 OUT (Y) 2
EXT MIC 1 OUT (G) 3
INT
EXT
CN206
MIC OUT (X) 1
3-d CCU
MIC OUT (Y) 2
3-K CCU
MIC OUT (G) 3
CN205
MIC 1 OUT (X) 1
2-9 VTR
MIC 1 OUT (Y) 2
2-10 VTR
MIC 1 OUT (G) 3

AU-108 BOARD
1-623-333-12
CA-50 (J, UC) 10001~
CA-50P (EK) 10126~

LF-14 BOARD

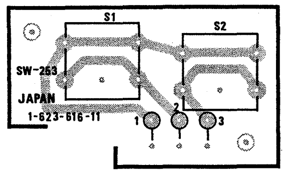

C1
C4
C3
A2 A1 A2 A1

1-623-748-11 COMPONENT SIDE


JAPAN
CN300
C2
C3

1-623-748-11 SOLDERING SIDE

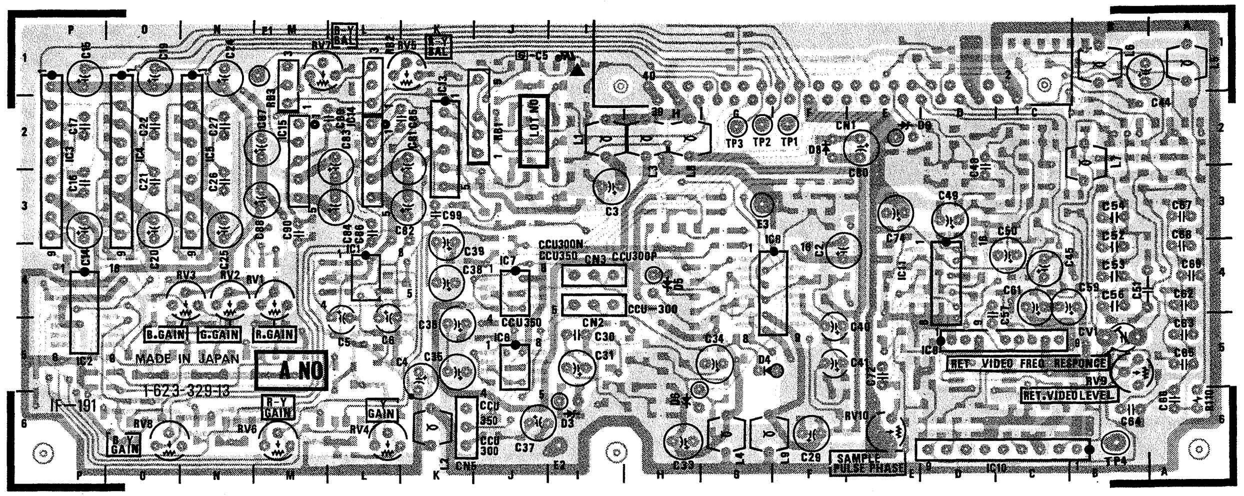
SW-253 BOARD


S1
S2
SW-253
JAPAN
1-623-616-11
1
2
3

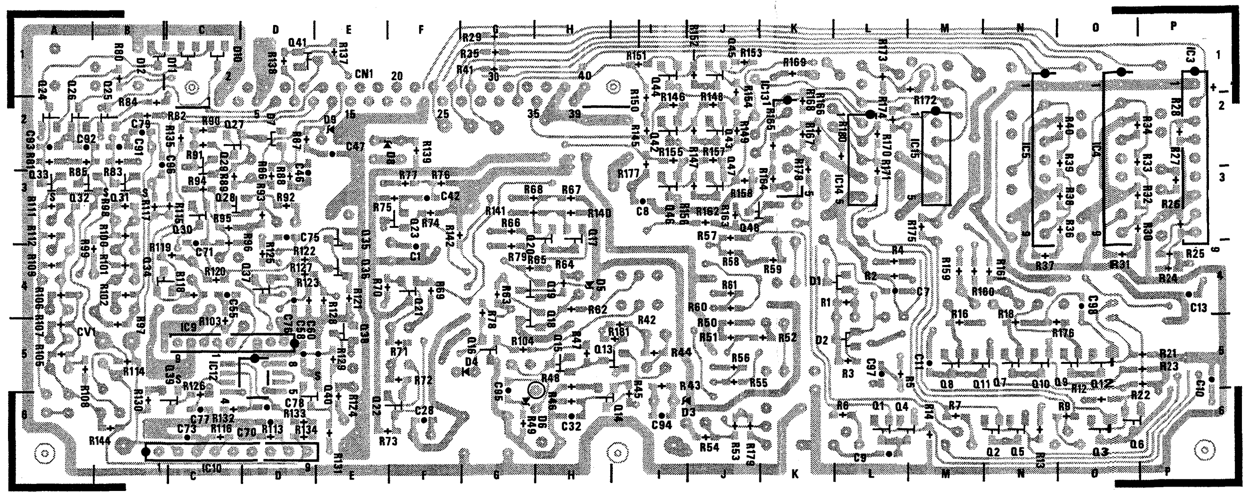
1-623-616-11 COMPONENT SIDE

Ser.No.10286 and higher (J)
10396 and higher (UC)
10911 and higher (EK)

HN-95 BOARD

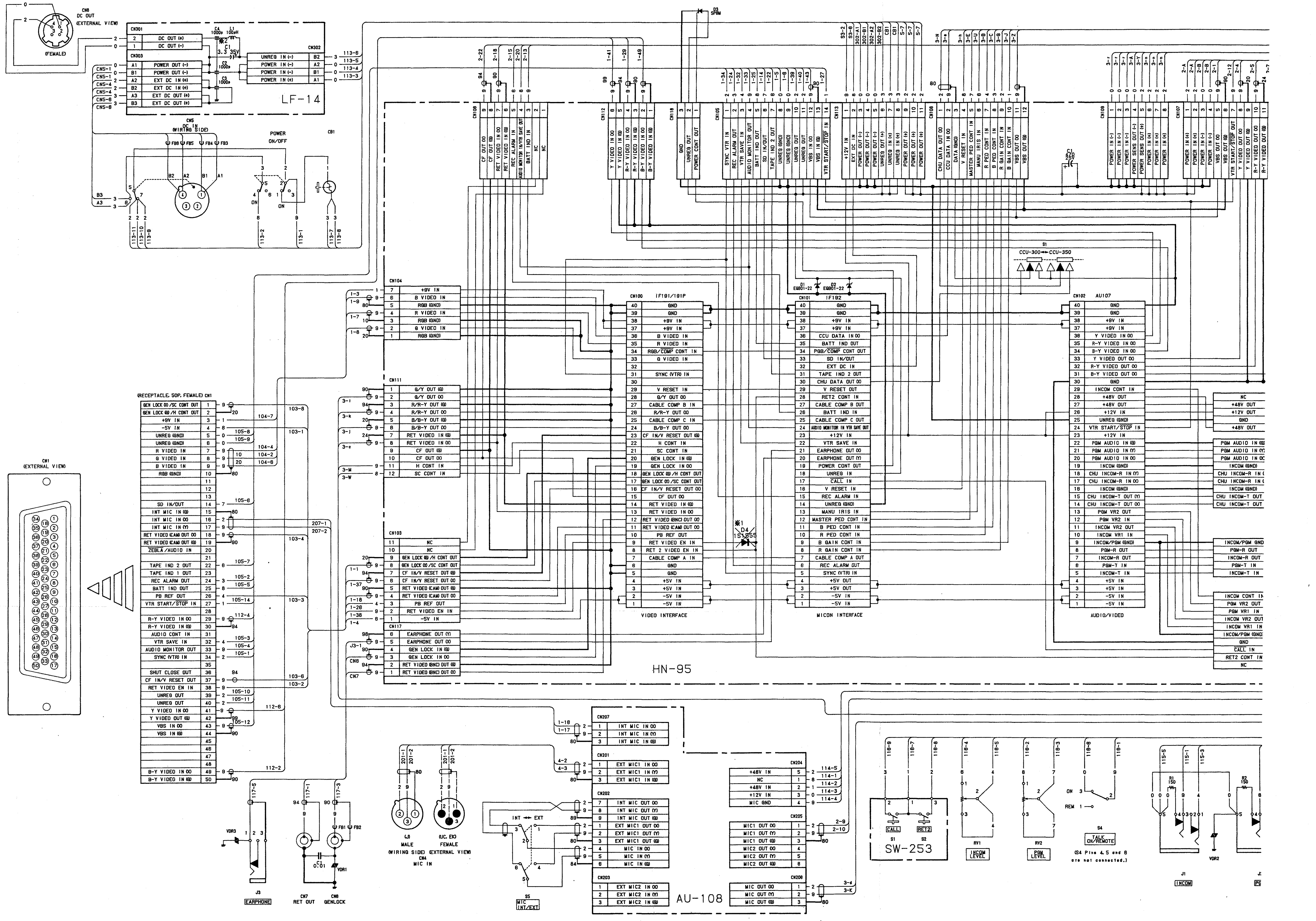

TP3 TP2 TP1
B.GAIN
G.GAIN
R.GAIN
MADE IN JAPAN
1-623-329-13
A NO
R-Y GAIN
GAIN
CCU300N
CCU350
CN3
CCU300P
CCU-300
CN2
CN5
RET. VIDEO FREQ. RESPONCE
RET.VIDEO LEVEL
SAMPLE PULSE PHASE
IC10

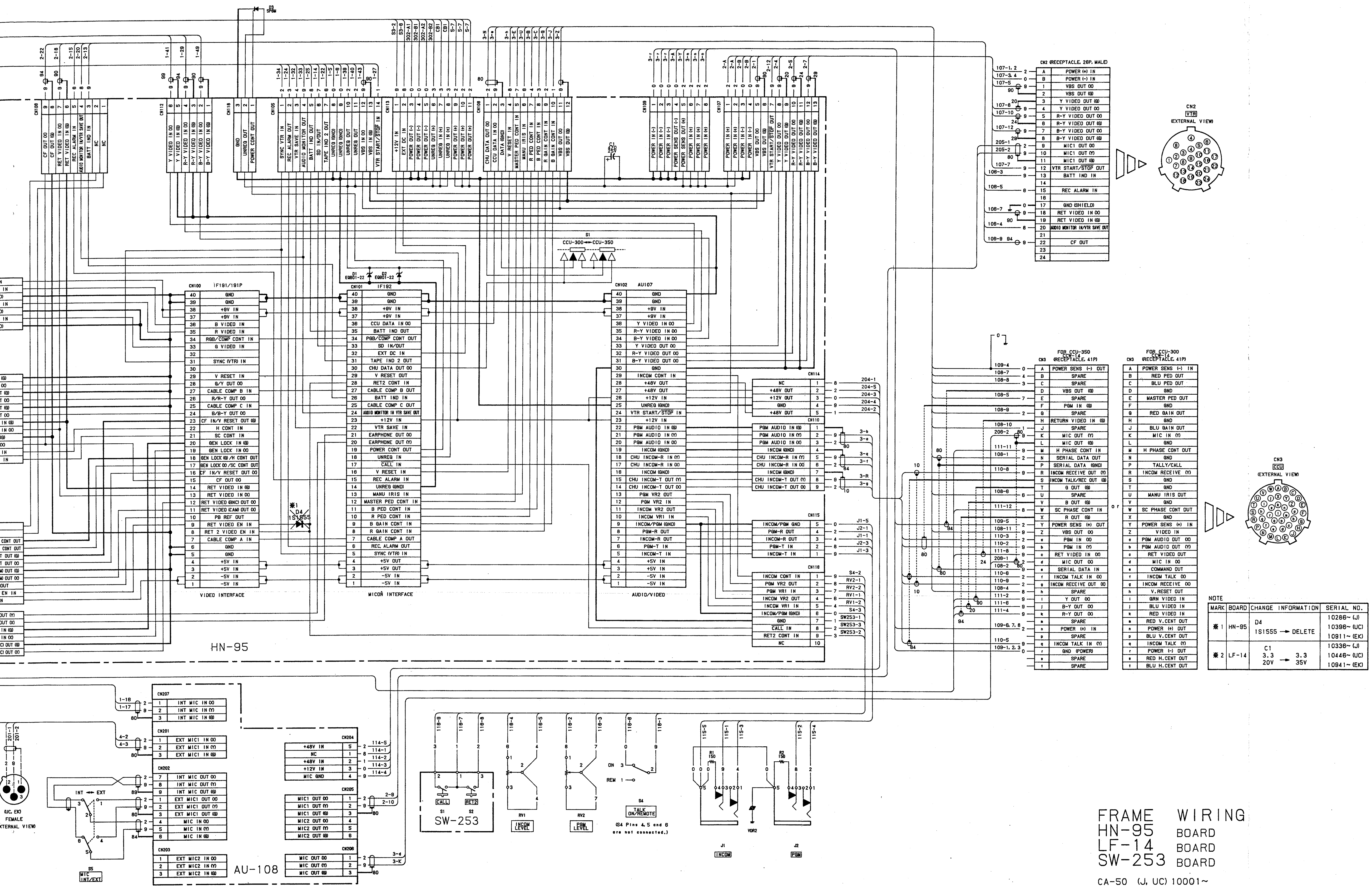
1-623-332-13 COMPONENT SIDE



1-623-332-13 SOLDERING SIDE

FRAME
HN-95 BOARD
LF-14 BOARD
SW-253 BOARD


CN6 DC OUT (EXTERNAL VIEW)
(FEMALE)
CN301
CN303
CN302
LF-14
CN5 DC 5V (WIRING SIDE)
POWER ON/OFF
CB1
D3 SP8M
CN108
CN112
CN118
CN105
CN113
CN106
CN109
CN107
CN104
CN111
CN103
CN117
CN100 IF191/191P
VIDEO INTERFACE
CN101 IF192
MICON INTERFACE
CN102 AU107
AUDIO/VIDEO
S1 CCU-300 ↔ CCU-350
D1 EQ01-22
D2 EQ01-22
D4 1SS355
CN1 (EXTERNAL VIEW)
(RECEPTACLE, 50P, FEMALE) CN1
HN-95
CN207
CN201
CN202
CN203
CN204
CN205
CN206
AU-108
L0 MALE (WIRING SIDE)
UC, EK FEMALE (EXTERNAL VIEW)
CN4 MIC IN
S5 MIC INT/EXT
J3 EARPHONE
CN7 RET OUT
CN8 GENLOCK
S1 CALL
S2 RET2
SW-253
RV1 INCOM LEVEL
RV2 PGM LEVEL
S4 TALK ON/REMOTE
(S4 Pins 4, 5 and 6 are not connected.)
J1 INCOM


HN-95
AU-108
SW-253
CN100 IF191/191P
VIDEO INTERFACE
CN101 IF192
MICON INTERFACE
CN102 AU107
AUDIO/VIDEO
CN2 (RECEPTACLE, 26P, MALE)
CN2 VTR (EXTERNAL VIEW)
FOR CCU-350 CN3 (RECEPTACLE, 41P)
FOR CCU-300 CN3 (RECEPTACLE, 41P)
CN3 CCU (EXTERNAL VIEW)
S1 CCU-300 ⟷ CCU-350
D1 EQ01-22
D2 EQ01-22
D3 SP6M
✱1 D4 1S1555
C1 3.3 20V
CN114
CN110
CN115
CN116
CN207
CN201
CN202
CN203
CN204
CN205
CN206
S1 CALL
S2 RET2
RV1 INCOM LEVEL
RV2 PGM LEVEL
S4 TALK ON/REMOTE
(S4 Pins 4,5 and 6 are not connected.)
ON 3
REM 1
J1 INCOM
J2 PGM
S5 MIC INT/EXT
INT ⟷ EXT
(UC, EK) FEMALE (EXTERNAL VIEW)
R1 150
R2 150
VDR2

NOTE

MARK	BOARD	CHANGE INFORMATION	SERIAL NO.
✱1	HN-95	D4 1S1555 → DELETE	10286~ (J) 10396~ (UC) 10911~ (EK)
✱2	LF-14	C1 3.3 20V → 3.3 35V	10336~ (J) 10446~ (UC) 10941~ (EK)

FRAME WIRING
HN-95 BOARD
LF-14 BOARD
SW-253 BOARD

CA-50 (J, UC) 10001~
CA-50P (EK) 10126~

SECTION 8
SPARE PARTS

8-1. PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading marked with ! on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "**accommodating the improved parts and/or engineering changes**" or "**standardization of genuine parts**". This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present". Regarding engineering parts and diagrams changes in our engineering department, refer SECTION 9. CHANGE INFORMATION.

3. **The parts marked with "S" in the SP column** of the exploded views and electical spare parts list are nomally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. **Abbreviation**

REF.No.	DESCRIPTION	REF.No.	DESCRIPTION	REF.No.	DESCRIPTION
C	CAPACITOR	IC	IC	RV	VARIABLE RESISTOR
CN	CONNECTOR	L	INDUCTOR	S	SWITCH
CP	COMBINATION PARTS	Q	TRANSISTOR	SP	SHORT PLUG
D	DIODE	R	RESISTOR	T	TRANSFORMER
FB	FERRITE BEAD	RB	RESISTOR BLOCK	X	OSCILLATOR

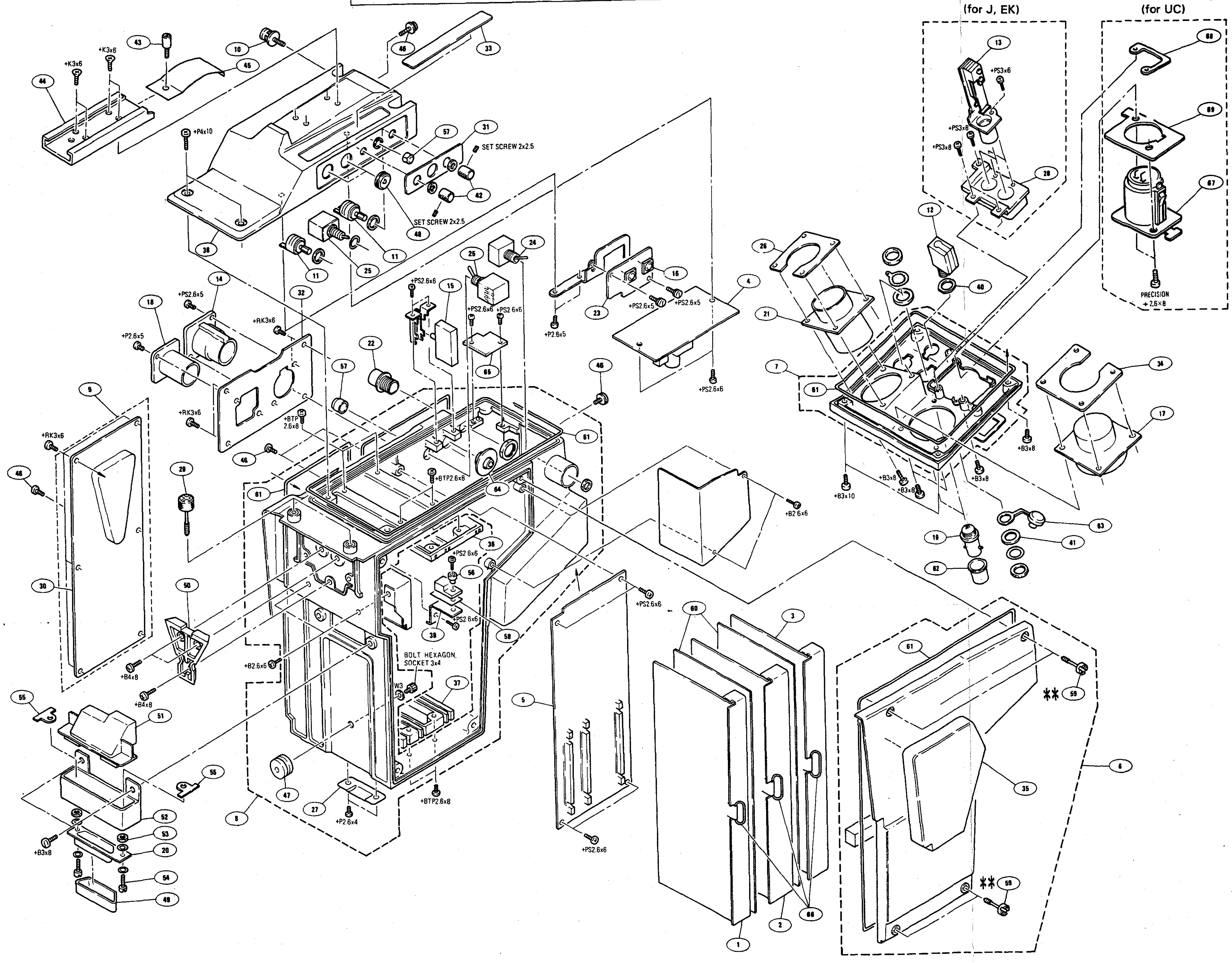
All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

8-2. EXPLODED VIEW

No.	Parts No.	SP	Description
1	A-7513-625-B	o	MOUNTED CIRCUIT BOARD "IF-191/191P"
2	A-7513-627-A	o	MOUNTED CIRCUIT BOARD "IF-192"
3	A-7513-628-A	o	MOUNTED CIRCUIT BOARD "AU-107"
4	A-7513-629-A	o	MOUNTED CIRCUIT BOARD "AU-108"
5	A-7513-631-A	o	MOUNTED CIRCUIT BOARD "HN-95"
6	X-2380-727-1	o	PLATE (R) ASSY, SIDE
7	X-2380-728-1	o	BRACKET SUB ASSY, CONNECTOR (FOR J,EK)
	X-2380-745-1	o	BRACKET SUB ASSY, CONNECTOR Ser.No 10371 ~ (FOR UC)
8	X-2380-729-1	o	CABINET BLOCK ASSY
9	X-2380-732-1	o	ASSY, SIDE PLATE (L)
10	X-3710-037-1	o	SUSPENSION ASSY (C)
11	1-230-350-11	s	RES, VAR, CARBON 20K "INCOM LEVEL" "PGM LEVEL"
12	1-507-251-31	s	JACK (JM35, M10) "EARPHONE"
13	1-507-676-00	s	JACK, PHONE "INCOM" "PGM" (FOR J,EK)
14	1-509-176-31	s	RECEPTACLE, 3P MALE "MIC IN" (J)
	1-509-184-31	s	RECEPTACLE, 3P FEMALE "MIC IN" (UC,EK)
15	1-532-681-00	s	CIRCUIT BREAKER
16	1-553-739-21	s	SWITCH KEYBOARD "CALL" "RET2"
17	1-560-331-00	o	RECEPTACLE, 41P MALE "CCU"
18	1-560-999-11	s	RECEPTACLE, 4P MALE "DC IN"
19	1-561-781-21	o	RECEPTACLE, BNC "RET OUT" "GEN LOCK"
20	1-562-083-00	s	RECEPTACLE, 50P FEMALE
21	1-562-244-00	o	RECEPTACLE, 26P MALE "VTR"
22	1-563-929-11	s	RECEPTACLE, 4P FEMALE "DC OUT"
23	1-623-616-11	o	PRINTED CIRCUIT BOARD "SW-253"
24	1-571-367-11	s	SWITCH, TOGGLE "POWER ON/OFF"
25	1-561-368-11	s	SWITCH, TOGGLE "MIC INT/EXT" "TALK ON/REMOTE"
26	2-090-229-00	s	NUT, PLATE
27	2-122-059-01	o	SPRING
28	2-270-650-00	o	INSULATOR (FOR J,EK)
29	2-359-964-02	o	SCREW
30	2-359-972-02	o	PLATE (LEFT), SIDE
31	2-359-975-02	o	PLATE, VR
32	2-359-976-01	o	PLATE, XLR
33	2-359-977-01	o	NAME PLATE
34	2-359-978-01	o	NUT (CCW), PLATE
35	2-359-980-01	s	PAD, CHEEK
36	2-359-987-01	o	RAIL (UPPER), PC BOARD
37	2-359-988-01	o	RAIL (LOWER), PC BOARD
38	2-359-991-01	o	COVER, UPPER
39	2-359-994-01	o	HOLDER, THYRISTOR
40	3-437-228-01	s	INSULATOR, JACK
41	3-437-229-01	s	INSULATOR (B), JACK
42	3-657-627-00	s	KNOB (2)
43	3-664-213-00	o	SCREW, STOPPER
44	3-664-218-00	o	SHUE
45	3-664-228-00	o	PLATE, SPRING
46	3-673-018-11	o	SCREW, BLIND
47	3-676-125-00	o	PIN, STOPPER
48	3-676-244-00	s	COVER, SWITCH
49	3-676-269-00	s	CAP (50P SOCKET SIDE), DUST
50	3-676-349-00	o	SHUE, V
51	3-676-352-00	s	CAP, C HOLDER
52	3-676-365-04	o	HOLDER, V CONNECTOR
53	3-676-369-00	o	NUT, SPACER
54	3-676-370-00	s	PIN, HOLDER, CN
55	3-676-371-00	o	NUT (S), PLATE
56	3-680-529-00	o	BUSHING, INSULATING
57	3-685-104-01	s	NUT (M6), CONTROL
58	3-703-037-00	s	INSULATOR, TO-220
59	3-710-016-02	s	SCREW (M4X18), LID
60	3-710-033-03	o	PLATE, SHIELD, PC BOARD
61	3-711-710-01	o	RUBBER, SHIELD
62	3-717-823-01	s	COVER, BNC
63	3-849-405-02	s	COVER, EARPHONE JACK
64	3-888-428-00	s	PACKING, SPEAKER KNOB
65	1-623-748-11	s	PRINTED CIRCUIT BOARD "LF-14"
66	3-711-775-01	o	LEVER, PULL
67	1-563-159-11	s	CONNECTOR (RECEPTACLE).5P Ser.No 10371 ~ (FOR UC)
68	2-126-659-02	o	NUT (INCOM),PLATE Ser.No 10371 ~ (FOR UC)
69	2-128-288-01	s	SHEET (2), INCOM Ser.No 10371 ~ (FOR UC)

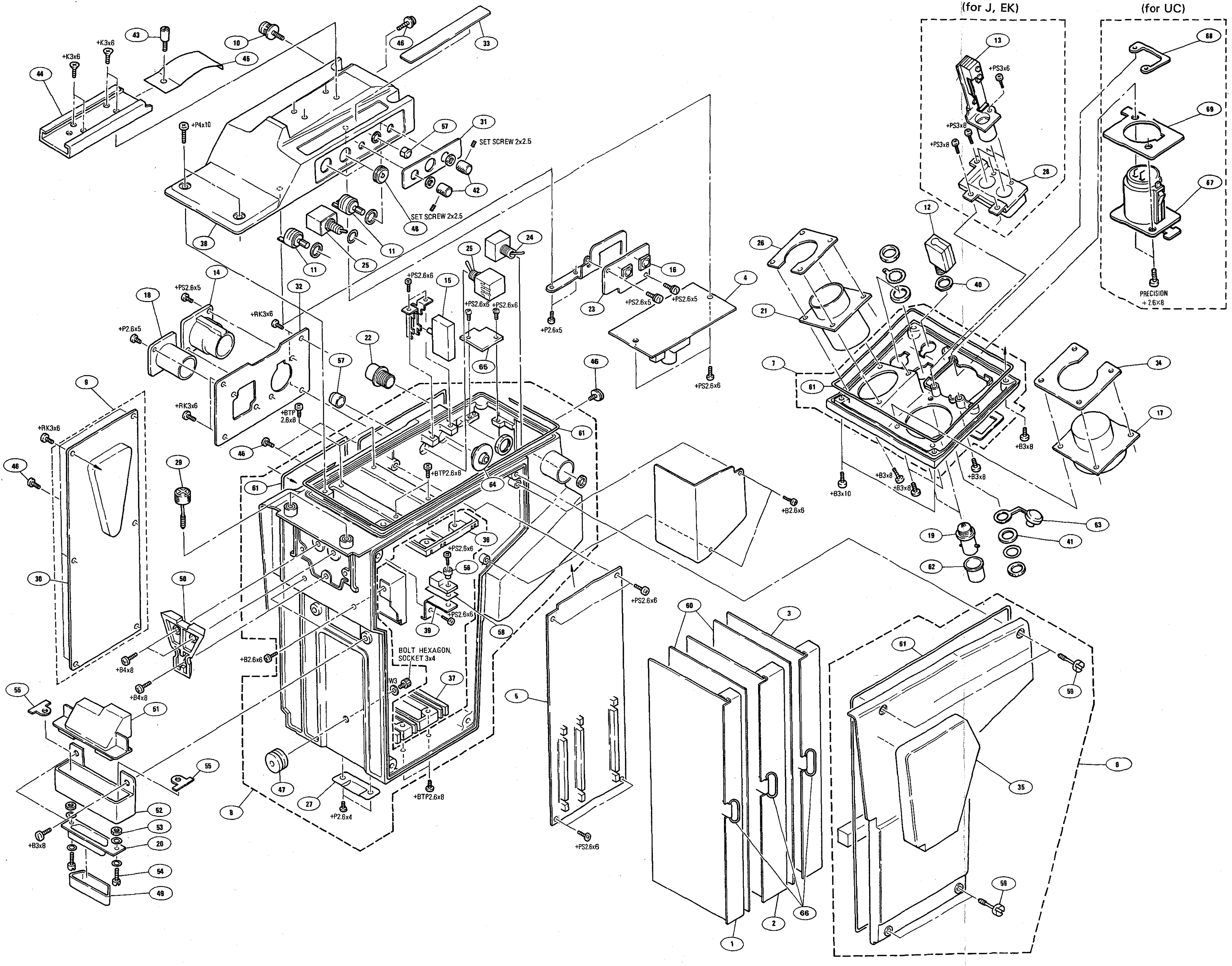
EXPLODED VIEW

EXPLODED VIEW


(for J, EK)
(for UC)
43
+K3x6
+K3x6
10
46
33
44
45
+P4x10
57
31
SET SCREW 2x2.5
42
SET SCREW 2x2.5
48
38
11
25
11
24
25
14
18
+PS2.6x5
32
+RK3x6
+P2.6x5
+PS2.6x6
15
+PS2.6x6
+PS2.6x6
65
16
23
+PS2.6x5
+PS2.6x5
4
+P2.6x5
+PS2.6x6
22
57
46
9
+RK3x6
+BTP 2.6x8
+RK3x6
46
61
29
48
61
+BTP2.6x8
64
+B2.6x6
36
+PS2.6x6
56
30
50
39
+PS2.6x6
58
+PS2.6x6
+B4x8
+B4x8
+B2.6x6
BOLT HEXAGON, SOCKET 3x4
W3
37
5
60
3
61
**
59
55
51
47
27
+P2.6x4
+BTP2.6x8
8
55
52
53
20
54
49
+B3x8
+PS2.6x6
1
2
66
35
6
**
59
13
+PS3x6
+PS3x8
+PS3x8
28
12
68
69
67
PRECISION +2.6x8
26
21
40
7
61
34
17
+B3x8
+B3x8
+B3x8
+B3x10
+B3x8
63
41
19
62

EXPLODED VIEW

EXPLODED VIEW


(for J, EK)
(for UC)
+K3x6
+K3x6
+P4x10
SET SCREW 2x2.5
SET SCREW 2x2.5
+PS2.6x5
+RK3x6
+P2.6x5
+RK3x6
+BTP 2.6x8
+RK3x6
+PS2.6x6
+PS2.6x6
+PS2.6x6
+BTP2.6x8
+PS2.6x5
+PS2.6x5
+P2.6x5
+PS2.6x6
+B2.6x6
+PS2.6x6
+PS2.6x6
BOLT HEXAGON, SOCKET 3x4
W3
+B4x8
+B4x8
+B2.6x6
+B3x8
+P2.6x4
+BTP2.6x8
+PS2.6x6
+PS3x6
+PS3x8
+PS3x8
PRECISION +2.6x8
+B3x8
+B3x8
+B3x8
+B3x8
+B3x10
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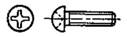
* Screws

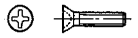
+P
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 3	144-09
x 4	145-09
x 5	146-09
x 6	147-09
x 8	148-09
x 10	149-09
x 12	150-09
x 14	151-09
4 x 4	158-09
x 5	159-09
x 6	160-09
x 8	161-09
x 10	162-09
x 12	163-09
x 14	164-09
x 16	165-09
x 20	166-09

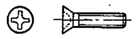
+K
Cr-N



7-682-□□□-□□

SIZE	Parts No.
3 x 4	245-04
x 5	246-04
x 6	247-04
x 8	248-04
x 10	249-04
x 12	250-04
x 14	251-04
x 16	252-04
x 20	253-04
4 x 6	260-04
x 8	261-04
x 10	262-04
x 12	263-04
x 14	264-04
x 16	265-04
x 20	266-04

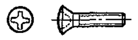
+K
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 4	245-09
x 5	246-09
x 6	247-09
x 8	248-09
x 10	249-09
x 12	250-09
x 14	251-09
x 16	252-09
x 20	253-09
4 x 6	260-09
x 8	261-09
x 10	262-09
x 12	263-09
x 14	264-09
x 16	265-09
x 20	266-09

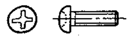
+RK
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 4	345-09
x 5	346-09
x 6	347-09
x 8	348-09
x 10	349-09
x 12	350-09
x 14	351-09
x 16	352-09
x 20	353-09
4 x 6	360-09
x 8	361-09
x 10	362-09
x 12	363-09
x 14	364-09
x 16	365-09
x 20	366-09

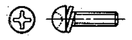
+B
Bzn-N



7-621-□□□-□□

SIZE	Parts No.
2 x 3	772-00
x 4	772-10
x 5	772-20
x 6	772-30
x 8	772-40
x 10	772-50
x 12	772-60
x 14	772-70
x 16	772-80
x 20	–
2.6 x 3	775-00
x 4	775-10
x 5	775-20
x 6	773-95
x 8	775-40
x 10	775-50
x 12	775-60
x 14	775-70
x 16	775-80
x 20	775-90

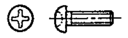
+PS
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
2 x 4	253-00
x 5	253-10
x 6	253-20
x 8	253-30
x 10	253-40
x 12	253-50
2.6 x 4	253-90
x 5	254-00
x 6	254-10
x 8	254-20
x 10	254-30
x 12	254-40
x 14	254-90
x 16	254-50
x 20	254-60
3 x 5	646-09
x 6	647-09
x 8	648-09
x 10	649-09
x 12	650-09
x 14	651-09
x 16	652-09
x 20	–
4 x 6	–
x 8	–
x 10	–
x 12	–
x 14	–
x 16	–
x 20	–

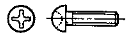
+B
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 3	544-09
x 4	545-09
x 5	546-09
x 6	547-09
x 8	548-09
x 10	549-09
x 12	550-09
x 14	551-09
x 16	552-09
x 20	553-09
x 30	555-09
4 x 4	558-09
x 5	559-09
x 6	560-09
x 8	561-09
x 10	562-09
x 12	563-09
x 14	564-09
x 16	565-09
x 20	566-09
5 x 8	574-09
x 10	575-09
x 12	576-09
x 14	577-09
x 16	578-09
x 20	579-09

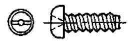
PRECISION +P
Cr-N



7-627-□□□-□□

SIZE	Parts No.
1.7 x 1.6	–
x 1.8	–
x 2	552-27
x 2.2	552-87
x 2.5	552-07
x 2.8	–
x 3	552-37
x 3.5	–
x 4	552-47
x 4.5	552-67
x 5	552-57
x 5.5	557-07
x 6	552-77
2 x 1.8	554-37
x 2	553-17
x 2.2	554-07
x 2.5	553-27
x 2.8	–
x 3	553-37
x 3.5	554-17
x 4	553-47
x 4.5	553-57
x 5	553-67
x 5.5	–
x 6	554-27
x 7	553-87
x 8	553-97
x 10	553-77
2.6 x 2.8	556-07
x 3	–
x 3.5	–
x 4	556-37
x 4.5	–
x 5	556-57
x 5.5	–
x 6	556-77
x 7	–
x 8	556-97
x 9	–
x 10	557-47

TOTSU P
BZn-N NON SLIT



7-685-□□□-□□

SIZE	Parts No.
2 x 4	102-19
2 x 5	103-19
2 x 6	104-19
2 x 8	105-19
2 x 10	106-19
2 x 12	107-19
2.6 x 4	131-19
2.6 x 5	132-19
2.6 x 6	133-19
2.6 x 8	134-19
2.6 x 10	135-19
2.6 x 12	136-19
2.6 x 14	137-19
2.6 x 16	138-19
3 x 5	144-19
3 x 6	145-19
3 x 8	146-19
3 x 10	147-19
3 x 12	148-19
3 x 14	149-19
3 x 16	150-19
3 x 18	
3 x 20	151-19
3 x 25	152-19
3 x 30	153-19
3 x 35	154-19
3 x 40	155-19
3 x 58	
4 x 6	158-19
4 x 8	159-19
4 x 10	160-19
4 x 12	161-19
4 x 14	162-19
4 x 16	163-19
4 x 20	164-19
4 x 25	165-19
4 x 30	166-19
4 x 35	167-19

8-3. ELECTRICAL PARTS

CAPACITOR, TANTALUM

0.01 - 100 (E6) 3.15V - 35V

Part No.	SP	Description
1-131-396-11	s	CAP, TANTALUM 0.01 20% 35V
1-131-397-11	s	CAP, TANTALUM 0.015 20% 35V
1-131-398-11	s	CAP, TANTALUM 0.022 20% 35V
1-131-399-11	s	CAP, TANTALUM 0.033 20% 35V
1-131-400-11	s	CAP, TANTALUM 0.047 20% 35V
1-131-401-21	s	CAP, TANTALUM 0.068 10% 35V
1-131-341-21	s	CAP, TANTALUM 0.1 10% 35V
1-131-342-21	s	CAP, TANTALUM 0.15 10% 35V
1-131-343-21	s	CAP, TANTALUM 0.22 10% 35V
1-131-344-21	s	CAP, TANTALUM 0.33 10% 35V
1-131-412-11	s	CAP, TANTALUM 0.47 20% 20V
1-131-345-21	s	CAP, TANTALUM 0.47 10% 35V
1-131-410-11	s	CAP, TANTALUM 0.68 20% 25V
1-131-346-21	s	CAP, TANTALUM 0.68 10% 35V
1-131-413-11	s	CAP, TANTALUM 1.0 20% 20V
1-131-347-21	s	CAP, TANTALUM 1.0 10% 35V
1-131-416-11	s	CAP, TANTALUM 1.5 20% 16V
1-131-348-21	s	CAP, TANTALUM 1.5 10% 35V
1-131-419-11	s	CAP, TANTALUM 2.2 20% 10V
1-131-361-21	s	CAP, TANTALUM 2.2 10% 20V
1-131-349-21	s	CAP, TANTALUM 2.2 10% 35V
1-131-422-11	s	CAP, TANTALUM 3.3 20% 6.3V
1-131-368-21	s	CAP, TANTALUM 3.3 10% 16V
1-131-356-21	s	CAP, TANTALUM 3.3 10% 25V
1-131-350-21	s	CAP, TANTALUM 3.3 10% 35V
1-131-425-11	s	CAP, TANTALUM 4.7 20% 3.15V
1-131-375-21	s	CAP, TANTALUM 4.7 10% 10V
1-131-363-21	s	CAP, TANTALUM 4.7 10% 20V
1-131-351-21	s	CAP, TANTALUM 4.7 10% 35V
1-131-382-21	s	CAP, TANTALUM 6.8 10% 6.3V
1-131-370-21	s	CAP, TANTALUM 6.8 10% 16V
1-131-358-21	s	CAP, TANTALUM 6.8 10% 25V
1-131-352-21	s	CAP, TANTALUM 6.8 10% 35V
1-131-389-21	s	CAP, TANTALUM 10 10% 3.15V
1-131-377-21	s	CAP, TANTALUM 10 10% 10V
1-131-365-21	s	CAP, TANTALUM 10 10% 20V
1-131-353-21	s	CAP, TANTALUM 10 10% 35V
1-131-384-21	s	CAP, TANTALUM 15 10% 6.3V
1-131-372-21	s	CAP, TANTALUM 15 10% 16V
1-131-360-21	s	CAP, TANTALUM 15 10% 25V
1-131-391-21	s	CAP, TANTALUM 22 10% 3.15V
1-131-379-21	s	CAP, TANTALUM 22 10% 10V
1-131-367-21	s	CAP, TANTALUM 22 10% 20V
1-131-386-21	s	CAP, TANTALUM 33 10% 6.3V
1-131-374-21	s	CAP, TANTALUM 33 10% 16V
1-131-393-21	s	CAP, TANTALUM 47 10% 3.15V
1-131-381-21	s	CAP, TANTALUM 47 10% 10V
1-131-388-21	s	CAP, TANTALUM 68 10% 6.3V
1-131-395-21	s	CAP, TANTALUM 100 10% 3.15V

CAPACITOR, CHIP CERAMIC

1pF - 4pF CH ±0.25pF 50V
6pF - 8pF CH ±0.5pF 50V
10pF - 1000pF CH ±5% 50V
1500pF - 6800pF B ±10% 50V
0.01μF - 0.015μF B ±10% 50V
0.033μF - 0.047μF F +80/-20% 50V
0.068μF - 0.1μF F +80/-20% 25V

Part No.	SP	Description
1-163-083-00	s	CAP, CHIP CERAMIC 1pF ±0.25pF 50V
1-163-085-00	s	CAP, CHIP CERAMIC 2pF ±0.25pF 50V
1-163-087-00	s	CAP, CHIP CERAMIC 4pF ±0.25pF 50V
1-163-089-00	s	CAP, CHIP CERAMIC 6pF ±0.5pF 50V
1-163-091-00	s	CAP, CHIP CERAMIC 8pF ±0.5pF 50V
1-163-093-00	s	CAP, CHIP CERAMIC 10pF 5% 50V
1-163-097-00	s	CAP, CHIP CERAMIC 15pF 5% 50V
1-163-101-00	s	CAP, CHIP CERAMIC 22pF 5% 50V
1-163-105-00	s	CAP, CHIP CERAMIC 33pF 5% 50V
1-163-109-00	s	CAP, CHIP CERAMIC 47pF 5% 50V
1-163-113-00	s	CAP, CHIP CERAMIC 68pF 5% 50V
1-163-117-00	s	CAP, CHIP CERAMIC 100pF 5% 50V
1-163-121-00	s	CAP, CHIP CERAMIC 150pF 5% 50V
1-163-125-00	s	CAP, CHIP CERAMIC 220pF 5% 50V
1-163-129-00	s	CAP, CHIP CERAMIC 330pF 5% 50V
1-163-133-00	s	CAP, CHIP CERAMIC 470pF 5% 50V
1-163-137-00	s	CAP, CHIP CERAMIC 680pF 5% 50V
1-163-141-00	s	CAP, CHIP CERAMIC 1000pF 5% 50V
1-163-145-00	s	CAP, CHIP CERAMIC 1500pF 10% 50V
1-163-013-00	s	CAP, CHIP CERAMIC 2200pF 10% 50V
1-163-015-00	s	CAP, CHIP CERAMIC 3300pF 10% 50V
1-163-017-00	s	CAP, CHIP CERAMIC 4700pF 10% 50V
1-163-019-00	s	CAP, CHIP CERAMIC 6800pF 10% 50V
1-163-021-00	s	CAP, CHIP CERAMIC 0.01 10% 50V
1-163-023-00	s	CAP, CHIP CERAMIC 0.015 10% 50V
1-163-034-00	s	CAP, CHIP CERAMIC 0.033 50V
1-163-035-00	s	CAP, CHIP CERAMIC 0.047 50V
1-163-036-00	s	CAP, CHIP CERAMIC 0.068 50V
1-163-038-00	s	CAP, CHIP CERAMIC 0.1 50V

RESISTOR, CHIP

1/10W
0 - 3.3M (E12) ±5% 1/10W

Part No.	SP	Description
1-216-295-00	s	RES, CHIP 0 5% 1/10W
1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
1-216-304-00	s	RES, CHIP 3.3 5% 1/10W
1-216-306-00	s	RES, CHIP 3.9 5% 1/10W
1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
1-216-001-00	s	RES, CHIP 10 5% 1/10W
1-216-003-00	s	RES, CHIP 12 5% 1/10W
1-216-005-00	s	RES, CHIP 15 5% 1/10W
1-216-007-00	s	RES, CHIP 18 5% 1/10W
1-216-009-00	s	RES, CHIP 22 5% 1/10W
1-216-011-00	s	RES, CHIP 27 5% 1/10W
1-216-013-00	s	RES, CHIP 33 5% 1/10W
1-216-015-00	s	RES, CHIP 39 5% 1/10W
1-216-017-00	s	RES, CHIP 47 5% 1/10W
1-216-019-00	s	RES, CHIP 56 5% 1/10W
1-216-021-00	s	RES, CHIP 68 5% 1/10W
1-216-023-00	s	RES, CHIP 82 5% 1/10W
1-216-025-00	s	RES, CHIP 100 5% 1/10W
1-216-027-00	s	RES, CHIP 120 5% 1/10W
1-216-029-00	s	RES, CHIP 150 5% 1/10W
1-216-031-00	s	RES, CHIP 180 5% 1/10W
1-216-033-00	s	RES, CHIP 220 5% 1/10W
1-216-035-00	s	RES, CHIP 270 5% 1/10W
1-216-037-00	s	RES, CHIP 330 5% 1/10W
1-216-039-00	s	RES, CHIP 390 5% 1/10W
1-216-041-00	s	RES, CHIP 470 5% 1/10W
1-216-043-00	s	RES, CHIP 560 5% 1/10W
1-216-045-00	s	RES, CHIP 680 5% 1/10W
1-216-047-00	s	RES, CHIP 820 5% 1/10W
1-216-049-00	s	RES, CHIP 1k 5% 1/10W
1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W

Part No.	SP	Description
1-216-073-00	s	RES, CHIP 10k 5% 1/10W
1-216-075-00	s	RES, CHIP 12k 5% 1/10W
1-216-077-00	s	RES, CHIP 15k 5% 1/10W
1-216-079-00	s	RES, CHIP 18k 5% 1/10W
1-216-081-00	s	RES, CHIP 22k 5% 1/10W
1-216-083-00	s	RES, CHIP 27k 5% 1/10W
1-216-085-00	s	RES, CHIP 33k 5% 1/10W
1-216-087-00	s	RES, CHIP 39k 5% 1/10W
1-216-089-00	s	RES, CHIP 47k 5% 1/10W
1-216-091-00	s	RES, CHIP 56k 5% 1/10W
1-216-093-00	s	RES, CHIP 68k 5% 1/10W
1-216-095-00	s	RES, CHIP 82k 5% 1/10W
1-216-097-00	s	RES, CHIP 100k 5% 1/10W
1-216-099-00	s	RES, CHIP 120k 5% 1/10W
1-216-101-00	s	RES, CHIP 150k 5% 1/10W
1-216-103-00	s	RES, CHIP 180k 5% 1/10W
1-216-105-00	s	RES, CHIP 220k 5% 1/10W
1-216-107-00	s	RES, CHIP 270k 5% 1/10W
1-216-109-00	s	RES, CHIP 330k 5% 1/10W
1-216-111-00	s	RES, CHIP 390k 5% 1/10W
1-216-113-00	s	RES, CHIP 470k 5% 1/10W
1-216-115-00	s	RES, CHIP 560k 5% 1/10W
1-216-117-00	s	RES, CHIP 680k 5% 1/10W
1-216-119-00	s	RES, CHIP 820k 5% 1/10W
1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
1-216-123-00	s	RES, CHIP 1.2M 5% 1/10W
1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
1-216-127-00	s	RES, CHIP 1.8M 5% 1/10W
1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
1-216-131-00	s	RES, CHIP 2.7M 5% 1/10W
1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

RESISTOR, CHIP METAL

1/10W
10 - 100K (E24) 1/10W

Part No.	SP	Description
1-216-603-11	s	RES, CHIP METAL 10 1% 1/10W
1-216-605-11	s	RES, CHIP METAL 12 1% 1/10W
1-216-609-11	s	RES, CHIP METAL 18 1% 1/10W
1-216-611-11	s	RES, CHIP METAL 22 1% 1/10W
1-216-614-11	s	RES, CHIP METAL 30 1% 1/10W
1-216-617-11	s	RES, CHIP METAL 39 1% 1/10W
1-216-619-11	s	RES, CHIP METAL 47 1% 1/10W
1-216-620-11	s	RES, CHIP METAL 51 1% 1/10W
1-216-623-11	s	RES, CHIP METAL 68 1% 1/10W
1-216-624-11	s	RES, CHIP METAL 75 1% 1/10W
1-216-625-11	s	RES, CHIP METAL 82 1% 1/10W
1-216-626-11	s	RES, CHIP METAL 91 1% 1/10W
1-216-627-11	s	RES, CHIP METAL 100 1% 1/10W
1-216-629-11	s	RES, CHIP METAL 120 1% 1/10W
1-216-631-11	s	RES, CHIP METAL 150 1% 1/10W
1-216-633-11	s	RES, CHIP METAL 180 1% 1/10W
1-216-634-11	s	RES, CHIP METAL 200 1% 1/10W
1-216-635-11	s	RES, CHIP METAL 220 1% 1/10W
1-216-636-11	s	RES, CHIP METAL 240 1% 1/10W
1-216-637-11	s	RES, CHIP METAL 270 1% 1/10W
1-216-638-11	s	RES, CHIP METAL 300 1% 1/10W
1-216-639-11	s	RES, CHIP METAL 330 1% 1/10W
1-216-640-11	s	RES, CHIP METAL 360 1% 1/10W
1-216-641-11	s	RES, CHIP METAL 390 1% 1/10W
1-216-642-11	s	RES, CHIP METAL 430 1% 1/10W
1-216-643-11	s	RES, CHIP METAL 470 1% 1/10W
1-216-644-11	s	RES, CHIP METAL 510 1% 1/10W
1-216-645-11	s	RES, CHIP METAL 560 1% 1/10W
1-216-647-11	s	RES, CHIP METAL 680 1% 1/10W
1-216-648-11	s	RES, CHIP METAL 750 1% 1/10W
1-216-649-11	s	RES, CHIP METAL 820 1% 1/10W
1-216-650-11	s	RES, CHIP METAL 910 1% 1/10W
1-216-651-11	s	RES, CHIP METAL 1.0k 1% 1/10W
1-216-652-11	s	RES, CHIP METAL 1.1k 1% 1/10W
1-216-653-11	s	RES, CHIP METAL 1.2k 1% 1/10W
1-216-655-11	s	RES, CHIP METAL 1.5k 1% 1/10W
1-216-656-11	s	RES, CHIP METAL 1.6k 1% 1/10W
1-216-657-11	s	RES, CHIP METAL 1.8k 1% 1/10W
1-216-658-11	s	RES, CHIP METAL 2k 1% 1/10W
1-216-659-11	s	RES, CHIP METAL 2.2k 1% 1/10W
1-216-660-11	s	RES, CHIP METAL 2.4k 1% 1/10W
1-216-661-11	s	RES, CHIP METAL 2.7k 1% 1/10W
1-216-662-11	s	RES, CHIP METAL 3k 1% 1/10W
1-216-663-11	s	RES, CHIP METAL 3.3k 1% 1/10W
1-216-664-11	s	RES, CHIP METAL 3.5k 1% 1/10W
1-216-665-11	s	RES, CHIP METAL 3.9k 1% 1/10W
1-216-666-11	s	RES, CHIP METAL 4.3k 1% 1/10W
1-216-667-11	s	RES, CHIP METAL 4.7k 1% 1/10W
1-216-668-11	s	RES, CHIP METAL 5.1k 1% 1/10W
1-216-669-11	s	RES, CHIP METAL 5.6k 1% 1/10W
1-216-670-11	s	RES, CHIP METAL 6.2k 1% 1/10W
1-216-671-11	s	RES, CHIP METAL 6.8k 1% 1/10W
1-216-672-11	s	RES, CHIP METAL 7.5k 1% 1/10W
1-216-673-11	s	RES, CHIP METAL 8.2k 1% 1/10W
1-216-674-11	s	RES, CHIP METAL 9.1k 1% 1/10W
1-216-675-11	s	RES, CHIP METAL 10k 1% 1/10W
1-216-676-11	s	RES, CHIP METAL 11k 1% 1/10W
1-216-677-11	s	RES, CHIP METAL 12k 1% 1/10W
1-216-678-11	s	RES, CHIP METAL 13k 1% 1/10W
1-216-679-11	s	RES, CHIP METAL 15k 1% 1/10W
1-216-680-11	s	RES, CHIP METAL 16k 1% 1/10W
1-216-681-11	s	RES, CHIP METAL 18k 1% 1/10W
1-216-682-11	s	RES, CHIP METAL 20k 1% 1/10W
1-216-683-11	s	RES, CHIP METAL 22k 1% 1/10W
1-216-684-11	s	RES, CHIP METAL 24k 1% 1/10W
1-216-685-11	s	RES, CHIP METAL 27k 1% 1/10W
1-216-686-11	s	RES, CHIP METAL 30k 1% 1/10W
1-216-687-11	s	RES, CHIP METAL 33k 1% 1/10W
1-216-688-11	s	RES, CHIP METAL 36k 1% 1/10W
1-216-689-11	s	RES, CHIP METAL 39k 1% 1/10W
1-216-690-11	s	RES, CHIP METAL 43k 1% 1/10W
1-216-691-11	s	RES, CHIP METAL 49k 1% 1/10W
1-216-692-11	s	RES, CHIP METAL 51k 1% 1/10W
1-216-693-11	s	RES, CHIP METAL 56k 1% 1/10W
1-216-694-11	s	RES, CHIP METAL 62k 1% 1/10W
1-216-695-11	s	RES, CHIP METAL 68k 1% 1/10W
1-216-696-11	s	RES, CHIP METAL 75k 1% 1/10W
1-216-697-11	s	RES, CHIP METAL 82k 1% 1/10W
1-216-698-11	s	RES, CHIP METAL 91k 1% 1/10W
1-216-699-11	s	RES, CHIP METAL 100k 1% 1/10W

CONNECTOR, RECEPTACLE (STRAIGHT TYPE)
CONNECTOR, RECEPTACLE (ANGLE TYPE)
CONNECTOR, HOUSING
CONNECTOR, CONTACT AWG24-30/AWG32

2P - 15P

Part No.	SP	Description
1-506-467-11	o	RECEPTACLE 2P MALE (STRAIGHT TYPE)
1-506-481-11	o	RECEPTACLE 2P MALE (ANGLE TYPE)
1-562-147-11	o	HOUSING 2P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-468-11	o	RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RECEPTACLE 3P MALE (ANGLE TYPE)
1-562-148-11	o	HOUSING 3P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-469-11	o	RECEPTACLE 4P MALE (STRAIGHT TYPE)
1-506-483-21	o	RECEPTACLE 4P MALE (ANGLE TYPE)
1-562-149-11	o	HOUSING 4P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-470-11	o	RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RECEPTACLE 5P MALE (ANGLE TYPE)
1-562-150-11	o	HOUSING 5P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-471-31	o	RECEPTACLE 6P MALE (STRAIGHT TYPE)
1-506-485-11	o	RECEPTACLE 6P MALE (ANGLE TYPE)
1-562-151-11	o	HOUSING 6P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-472-11	o	RECEPTACLE 7P MALE (STRAIGHT TYPE)
1-506-486-11	o	RECEPTACLE 7P MALE (ANGLE TYPE)
1-562-152-11	o	HOUSING 7P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-473-11	o	RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-487-11	o	RECEPTACLE 8P MALE (ANGLE TYPE)
1-562-153-11	o	HOUSING 8P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-474-11	o	RECEPTACLE 9P MALE (STRAIGHT TYPE)
1-506-488-11	o	RECEPTACLE 9P MALE (ANGLE TYPE)
1-562-154-11	o	HOUSING 9P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-475-11	o	RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-506-489-11	o	RECEPTACLE 10P MALE (ANGLE TYPE)
1-562-155-11	o	HOUSING 10P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-476-11	o	RECEPTACLE 11P MALE (STRAIGHT TYPE)
1-506-490-21	o	RECEPTACLE 11P MALE (ANGLE TYPE)
1-562-156-11	o	HOUSING 11P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-477-11	o	RECEPTACLE 12P MALE (STRAIGHT TYPE)
1-506-491-11	o	RECEPTACLE 12P MALE (ANGLE TYPE)
1-562-157-11	o	HOUSING 12P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-478-11	o	RECEPTACLE 13P MALE (STRAIGHT TYPE)
1-506-492-11	o	RECEPTACLE 13P MALE (ANGLE TYPE)
1-562-627-11	o	HOUSING 13P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-479-11	o	RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11	o	RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o	HOUSING 14P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-480-11	o	RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11	o	RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o	HOUSING 15P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32

AU-107 BOARD

Ref.No.	Parts No.	SP	Description
	A-7513-628-A	o	MOUNTED CIRCUIT BOARD "AU-107"
C3	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C4	1-107-039-00	s	MICA 1.2PF±0.5PF 500V
C6	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C7	1-107-039-00	s	MICA 1.2PF±0.5PF 500V
C10	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C11	1-107-039-00	s	MICA 1.2PF±0.5PF 500V
C13	1-124-168-00	s	ELECT 100 20% 16V
C14	1-124-360-00	s	ELECT 1000 20% 16V
C18	1-107-159-00	s	MICA 33PF 5% 500V
C21	1-107-159-00	s	MICA 33PF 5% 500V
C28	1-124-604-00	s	ELECT 330 20% 10V
C33	1-107-159-00	s	MICA 33PF 5% 500V
C35	1-107-159-00	s	MICA 33PF 5% 500V
C45	1-161-173-11	s	CERAMIC 0.001 5% 25V
CN1	1-506-730-11	o	RECEPTACLE, 40P MALE
CP1	1-464-758-11	s	DC-DC CONVERTER, CD-54
D1	8-719-910-15	s	HZ11B2L
IC1	8-741-135-60	s	BX1356; SONY
IC2	8-741-135-60	s	BX1356; SONY
IC3	8-741-135-60	s	BX1356; SONY
IC4	8-759-745-61	s	NJM4560D-D; JRC
IC5	8-759-745-56	s	NJM4556D; JRC
IC6	8-759-745-56	s	NJM4556D-D; JRC
L1	1-408-417-21	s	47μH
L2	1-408-417-21	s	47μH
L3	1-408-417-21	s	47μH
L4	1-408-417-21	s	47μH
Q1	8-729-100-66	s	2SC1623
Q2	8-729-119-04	s	2SC3115
Q3	8-729-119-04	s	2SC3115
Q4	8-729-100-66	s	2SC1623
Q5	8-729-100-66	s	2SC1623
R47	1-215-830-11	s	METAL 100K 1% 1/8W
R64	1-249-404-00	s	CARBON 82 5% 1/4W

Ref.No.	Parts No.	SP	Description
RV1	1-228-457-00	s	METAL 2K
RV2	1-228-457-00	s	METAL 2K
RV3	1-228-457-00	s	METAL 2K
S1	1-570-612-11	s	TOGGLE
SP1	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR

AU-108 BOARD

Ref.No.	Parts No.	SP	Description
	A-7513-629-A	o	MOUNTED CIRCUIT BOARD "AU-108"
C1	1-124-918-11	s	ELECT 47 20% 63V
C2	1-126-101-11	s	ELECT 100 20% 16V
C3	1-124-360-00	s	ELECT 1000 20% 16V
C5	1-102-112-00	s	CERAMIC 330PF 10% 50V
C6	1-102-112-00	s	CERAMIC 330PF 10% 50V
D1	8-719-910-15	s	HZ11B2L
IC1	8-759-700-04	s	NJM2043D-D; JRC
Q1	8-729-100-06	s	2SC1623
Q2	8-729-119-04	s	2SC3115
Q3	8-729-119-04	s	2SC3115
R5	1-215-485-00	s	METAL 470K 1% 1/6W
S1	1-570-373-12	s	SLIDE
T1	1-429-067-00	s	MICROPHONE
T2	1-427-599-12	s	INPUT

HN-95 BOARD

Ref.No.	Parts No.	SP	Description
	A-7513-631-B	o	MOUNTED CIRCUIT BOARD "HN-95"
C1	1-124-480-11	s	ELECT 470 20% 25V
CN100	1-563-239-11	s	RECEPTACLE, 40P FEMALE
CN101	1-563-239-11	s	RECEPTACLE, 40P FEMALE
CN102	1-563-239-11	s	RECEPTACLE, 40P FEMALE
D1	8-719-931-22	s	EQB01-22
D2	8-719-931-22	s	EQB01-22
S1	1-570-839-11	s	SLIDE

IF-191/191P BOARD

Ref.No.	Parts No.	SP	Description
	A-7513-625-B	o	MOUNTED CIRCUIT BOARD "IF-191/191P"
C16	1-107-040-00	s	MICA 1.5PF±0.5PF 500V
C21	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C26	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C30	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C31	1-124-584-00	s	ELECT 100 20% 10V
C48	1-107-046-00	s	MICA 4.7PF±0.5PF 500V
C51	1-162-711-11	s	CERAMIC 110PF 1% 50V
C52	1-107-049-00	s	MICA 8.2PF±0.5PF 500V
C53	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
C54	1-107-047-00	s	MICA 5.6PF±0.5PF 500V
C56	1-107-044-00	s	MICA 3.3PF±0.5PF 500V
C57	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C63	1-107-209-00	s	MICA 20PF 5% 500V
C64	1-107-026-00	s	MICA 5.1PF±0.5PF 500V
C65	1-107-208-00	s	MICA 18PF 5% 500V
C66	1-162-873-11	s	CERAMIC 56PF 5% 50V
C67	1-107-026-00	s	MICA 5.1PF±0.5PF 500V
C68	1-107-019-00	s	MICA 1PF±0.5PF 500V
C72	1-162-718-11	s	CERAMIC 220PF 1% 50V
C85	1-107-040-00	s	MICA 1.5PF±0.5PF 500V

Ref.No.	Parts No.	SP	Description
C86	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
C89	1-107-043-00	s	MICA 2.7PF±0.5PF 500V
C90	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
C99	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
CN1	1-506-730-11	o	RECEPTACLE, 40P MALE
CN2	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR
CN3	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR
CN5	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR
D1	8-719-100-03	s	1S2835
D2	8-719-100-03	s	1S2835
D3	8-719-942-33	s	HZ3CLL
D4	8-719-101-58	s	RD5.6EL2
D5	8-719-101-58	s	RD5.6EL2
D6	8-719-942-31	s	HZ3ALL
D7	8-719-100-03	s	1S2835
D8	8-719-101-50	s	RD5.1EL2
D9	8-719-101-39	s	RD3.6EL2
D10	8-719-948-47	s	HSM88AS
D11	8-719-948-47	s	HSM88AS
D12	8-719-948-47	s	HSM88AS
D13	8-719-100-03	s	12835
IC1	8-759-939-68	s	TL062ACPS; TI
IC2	8-759-009-07	s	MC14053BF; MOTOROLA
IC3	8-741-135-60	s	BX1356; SONY
IC4	8-741-135-60	s	BX1356; SONY
IC5	8-741-135-60	s	BX1356; SONY
IC6	8-759-939-68	s	TL062ACPS; TI
IC7	8-759-939-68	s	TL062ACPS; TI
IC8	8-759-009-07	s	MC14053BF; MOTOROLA
IC9	8-741-130-50	s	BX1305; SONY
IC10	8-741-135-60	s	BX1356; SONY
IC11	8-759-205-21	s	TC74HC221F; TOSHIBA
IC12	8-759-939-68	s	TL062ACPS; TI
IC13	1-807-422-11	s	BH1217; SONY
IC14	1-807-422-11	s	BH1217; SONY
IC15	1-807-422-11	s	BH1217; SONY
L1	1-408-417-21	s	47μH
L2	1-408-417-21	s	47μH
L3	1-408-417-21	s	47μH
L4	1-408-417-21	s	47μH
L5	1-408-417-21	s	47μH
L6	1-408-417-21	s	47μH
L7	1-408-453-21	s	82μH
L8	1-408-417-21	s	47μH
L9	1-408-417-21	s	47μH

Ref.No.	Parts No.	SP	Description
Q1	8-729-101-25	s	2SC1009A
Q2	8-729-101-25	s	2SC1009A
Q3	8-729-101-25	s	2SC1009A
Q4	8-729-100-66	s	2SC1623
Q5	8-729-100-66	s	2SC1623
Q6	8-729-100-66	s	2SC1623
Q7	8-729-101-25	s	2SC1009A
Q8	8-729-101-25	s	2SC1009A
Q9	8-729-101-25	s	2SC1009A
Q10	8-729-100-66	s	2SC1623
Q11	8-729-100-66	s	2SC1623
Q12	8-729-100-66	s	2SC1623
Q13	8-729-101-25	s	2SC1009A
Q14	8-729-100-66	s	2SC1623
Q15	8-729-101-25	s	2SC1009A
Q16	8-729-100-76	s	2SA812
Q17	8-729-100-66	s	2SC1623
Q18	8-729-100-76	s	2SA812
Q19	8-729-100-76	s	2SA812
Q20	8-729-100-66	s	2SC1623
Q21	8-729-100-66	s	2SC1623
Q22	8-729-100-66	s	2SC1623
Q23	8-729-100-76	s	2SA812
Q24	8-729-100-76	s	2SA812
Q25	8-729-100-76	s	2SA812
Q26	8-729-100-76	s	2SA812
Q27	8-729-101-25	s	2SC1009A
Q28	8-729-100-66	s	2SC1623
Q29	8-729-101-25	s	2SC1009A
Q30	8-729-100-66	s	2SC1623
Q31	8-729-109-44	s	2SK94
Q32	8-729-109-44	s	2SK94
Q33	8-729-109-44	s	2SK94
Q34	8-729-101-25	s	2SC1009A
Q35	8-729-122-63	s	2SA1226
Q36	8-729-122-63	s	2SA1226
Q37	8-729-100-66	s	2SC1623
Q38	8-729-100-66	s	2SC1623
Q39	8-729-109-44	s	2SK94
Q40	8-729-109-44	s	2SK94
Q41	8-729-100-76	s	2SA812
Q42	8-729-100-76	s	2SA812
Q43	8-729-101-25	s	2SC1009A
Q44	8-729-100-76	s	2SA812
Q45	8-729-101-25	s	2SC1009A
Q46	8-729-100-76	s	2SA812
Q47	8-729-101-25	s	2SC1009A
Q48	8-729-175-73	s	2SC2757

Ref.No.	Parts No.	SP	Description
R110	1-215-475-00	s	METAL 180K 1% 1/6W
RB1	1-235-528-12	s	RES, NETWORK
RB2	1-235-526-11	s	RES, NETWORK
RB3	1-235-527-11	s	RES, NETWORK
RV1	1-228-458-00	s	METAL 5K
RV2	1-228-458-00	s	METAL 5K
RV3	1-228-458-00	s	METAL 5K
RV4	1-228-457-00	s	METAL 2K
RV5	1-228-457-00	s	METAL 2K
RV6	1-228-457-00	s	METAL 2K
RV7	1-228-457-00	s	METAL 2K
RV8	1-228-457-00	s	METAL 2K
RV9	1-228-457-00	s	METAL 2K
RV10	1-228-459-00	s	METAL 10K

IF-192 BOARD

	A-7513-627-A	o	MOUNTED CIRCUIT BOARD "IF-192"
C2	1-163-099-00	s	CERAMIC CHIP 18PF 5% 50V
C4	1-163-135-00	s	CERAMIC CHIP 560PF 10% 50V
C25	1-163-135-00	s	CERAMIC CHIP 560PF 10% 50V
C30	1-163-135-00	s	CERAMIC CHIP 560PF 10% 50V
C33	1-125-393-11	s	DOUBLE LAYERS 0.47F 5.5V
C39	1-126-101-11	s	ELECT 100 20% 16V
CN1	1-506-730-11	o	RECEPTACLE, 40P MALE
D1	8-719-942-33	s	HZ3CLL
D2	8-719-102-53	s	1SZ53
D3	8-719-100-05	s	1S2837
D4	8-719-100-05	s	1S2837
D5	8-719-100-05	s	1S2837
D7	8-719-100-57	s	RD10EB2
D8	8-719-101-23	s	1SS123
D10	8-719-931-22	s	EQB01-22
D11	8-719-100-03	s	1S2835

Ref.No.	Parts No.	SP	Description
IC1	8-759-200-90	s	TC4538BF; TOSHIBA
IC2	8-759-000-62	s	MC14163BCP; MOTOROLA
IC3	8-759-000-62	s	MC14163BCP; MOTOROLA
IC4	8-759-000-62	s	MC14163BCP; MOTOROLA
IC5	8-759-201-53	s	TC40H000F; TOSHIBA
IC6	8-759-100-93	s	μPC393G2; NEC
IC7	8-759-101-21	s	μPC3423C; NEC
IC8	8-759-304-03	s	HD63PB05Y1; HITACHI
IC9	8-759-783-63	s	HN27C64G-CA-50-1.05 ; HITACHI
IC10	8-759-201-53	s	TC40H000F; TOSHIBA
IC11	8-759-303-80	s	HM6264LFP-15T; HITACHI
IC12	8-759-939-68	s	TL062ACPS; TI
IC13	8-759-708-05	s	NJM78L05A; JRC
IC14	8-759-939-68	s	TL062ACPS; TI
L1	1-408-417-21	s	47μH
Q1	8-729-100-66	s	2SC1623
Q2	8-729-100-66	s	2SC1623
Q3	8-729-100-66	s	2SC1623
Q4	8-729-100-66	s	2SC1623
Q5	8-729-100-76	s	2SA812
Q6	8-729-100-66	s	2SC1623
Q7	8-729-100-66	s	2SC1623
Q8	8-729-100-66	s	2SC1623
Q9	8-729-100-66	s	2SC1623
Q10	8-729-100-66	s	2SC1623
Q12	8-729-100-76	s	2SA812
Q13	8-729-100-66	s	2SC1623
Q14	8-729-100-66	s	2SC1623
Q15	8-729-100-66	s	2SC1623
Q16	8-729-100-76	s	2SA812
Q17	8-729-100-66	s	2SC1623
Q18	8-729-109-44	s	2SK94
Q19	8-729-100-76	s	2SA812
Q20	8-729-100-66	s	2SC1623
Q21	8-729-177-43	s	2SD774
R40	1-214-557-00	s	METAL 1K 1% 1/8W
R84	1-215-911-11	s	WIREWOUND 100 10% 3W
R88	1-247-903-11	s	CARBON (SMALL) 1M 5% 1/4W
RB1	1-235-052-00	s	33K

Ref.No.	Parts No.	SP	Description
RV1	1-228-460-00	s	METAL 20K
RV2	1-228-460-00	s	METAL 20K
RV3	1-228-457-00	s	METAL 2K
S1	1-570-621-11	s	DIP
T1	1-427-270-11	s	OUTPUT
X1	1-577-570-11	s	7.986MHz

LF-14 BOARD

	1-623-748-11	o	PRINTED CIRCUIT BOARD "LF-14"
C2	1-102-363-00	s	CERAMIC 0.001 50V
C3	1-102-363-00	s	CERAMIC 0.001 50V
C4	1-102-363-00	s	CERAMIC 0.001 50V
CN302	1-506-631-11	o	RECEPTACLE, 4P
	1-563-116-11	o	PLUG HOUSING, 4P
	1-563-115-11	o	PLUG CONTACT
CN303	1-506-632-11	o	RECEPTACLE, 6P
	1-563-117-11	o	PLUG HOUSING, 6P
	1-563-115-11	o	PLUG CONTACT
L1	1-408-421-00	s	100μH

SW-253 BOARD

	1-623-616-11	o	PRINTED CIRCUIT BOARD "SW-253"
S1	1-553-739-21	s	KEYBOARD "CALL"
S2	1-553-739-21	s	KEYBOARD "RET2"

FRAME

Ref.No.	Parts No.	SP	Description
C1	1-161-051-00	s	CERAMIC 0.01 10% 50V
CB1	1-532-681-00	s	4A
CN1	1-562-083-00	s	RECEPTACLE, 50P FEMALE
	1-562-084-11	s	PLUG CONTACT
	1-562-084-21	s	PLUG CONTACT
	1-562-084-31	s	PLUG CONTACT
CN2	1-562-244-00	o	RECEPTACLE, 26P MALE "VTR"
CN3	1-562-331-00	o	RECEPTACLE, 41P MALE "CCU"
CN4	1-509-176-31	s	RECEPTACLE, 3P MALE "MIC IN" (J)
	1-509-184-31	s	RECEPTACLE, 3P FEMALE "MIC IN" (UC,EK)
CN5	1-560-999-11	s	RECEPTACLE, 4P "DC IN"
CN6	1-561-781-21	s	RECEPTACLE, BNC "GEN LOCK"
CN7	1-561-781-21	s	RECEPTACLE, BNC "RET OUT"
CN8	1-563-929-11	s	RECEPTACLE, 4P FEMALE "DC OUT"
D3	8-719-108-18	s	5P6M
FB1	1-543-298-11	s	FERRITE BEAD
FB2	1-543-298-11	s	FERRITE BEAD
FB3	1-543-157-00	s	FERRITE BEAD
FB4	1-543-157-00	s	FERRITE BEAD
FB5	1-543-157-00	s	FERRITE BEAD
FB6	1-543-157-00	s	FERRITE BEAD
J1	1-507-676-00	s	JACK, PHONE "INCOM"
J2	1-507-676-00	s	JACK, PHONE "PGM"
J3	1-507-251-31	s	JACK, PHONE "EARPHONE"
R1	1-249-407-11	s	CARBON 150 5% 1/4W
R2	1-249-407-11	s	CARBON 150 5% 1/4W
RV1	1-237-981-11	s	CARBON 20K "INCOM LEVEL"
RV2	1-237-981-11	s	CARBON 20K "PGM LEVEL"
S3	1-571-367-11	s	TOGGLE "POWER ON/OFF"
S4	1-571-368-11	s	TOGGLE "TALK ON/REMOTE"
S5	1-571-368-11	s	TOGGLE "MIC INT/EXT"
VDR1	1-806-504-11	s	ERZ-C05DK820
VDR2	1-806-504-11	s	ERZ-C05DK820
VDR3	1-806-504-11	s	ERZ-C05DK820

8-4. SUPPLIED ACCESSORIES

Parts No.	SP	Description
3-698-917-01	o	BELT, SHOULDER

SONY

CAMERA ADAPTOR

CA-50/50P

SUPPLEMENT-1

Applicable Serial No. 10001 through 10090 (UC)
1st Edition
1st Edition (Revised 1)

Serial No. 10001 through 10020 (EK)
1st Edition

CONTENTS; SECTION 2. INSTALLATION
SECTION 3. SERVICE INFORMATION

Please file this SUPPLEMENT-1 to your own manual, and replace the TABLE OF CONTENTS with attached one.

BETACAM™

OPERATION AND MAINTENANCE MANUAL

CA-50 (UC)
CA-50P (EK)
9-967-124-01

Sony Corporation

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Printed in Japan
1988. 2 08

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.
"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC rules."
—or—
"This equipment complies with the requirements in Part 15 of FCC rules for a Class A Computing Device."
—or equivalent.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

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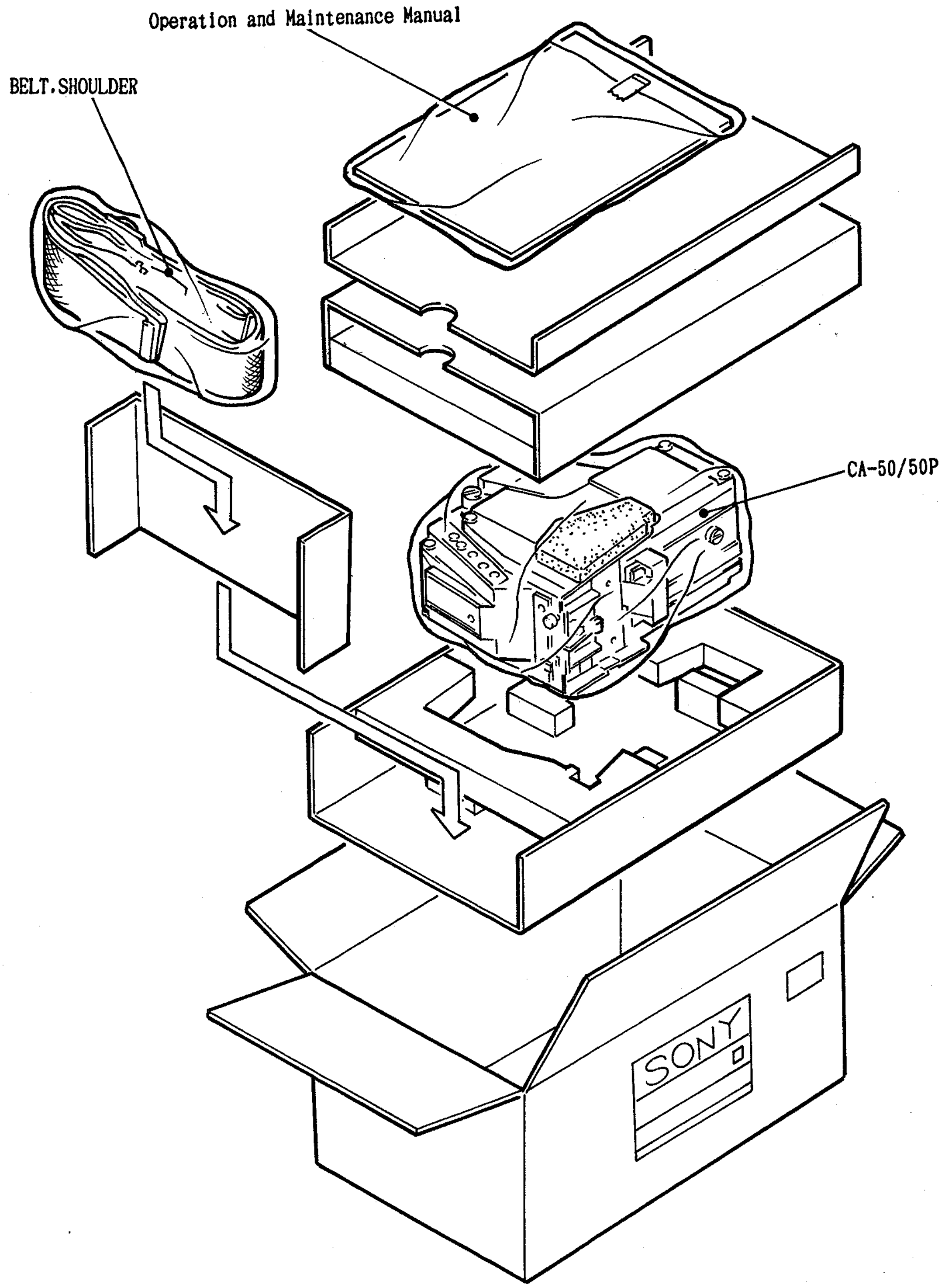
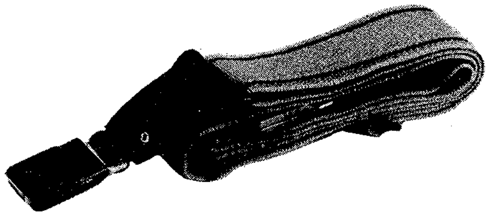
SECTION 2
INSTALLATION

2-1. UNPACKING AND REPACKING


Operation and Maintenance Manual
BELT.SHOULDER
CA-50/50P
SONY

2-2. SUPPLIED ACCESSORIES

Belt, Shoulder : ×1
Used for shoudering the Betacam camera with the CA-50/50P attached using it.



Operation and Maintenance Manual : ×1
Instruction and Service manual for CA-50/50P.

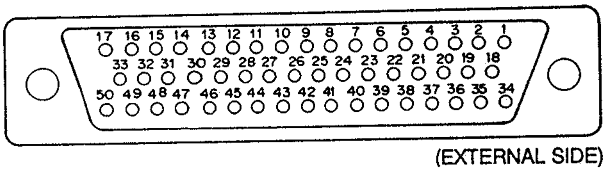
2-3. CONNECTORS/CABLE

2-3-1. Connector Input/Output signals

The main connector input/output signals are as follows;

REC OUT	VBS signal	1.0Vp-p
	Zo = 75Ω	
GENLOCK	VBS signal	1.0Vp-p
	or BS signal	0.3Vp-p
	Z i = 75Ω	
EARPHONE	1kHz OdBm	
	Zo = 8Ω	

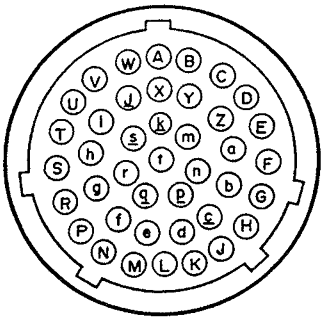
50-PIN CONNECTOR



(EXTERNAL SIDE)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GEN(X)/SC CONT OUT	VBS SIGNAL 1Vp-p
2	GEN(G)/H CONT OUT	SC/H CONT SIGNAL 0 ~ 5 Vdc
3	+9V IN	+9V
4	- 5V IN	- 5V
5	GND(POWER)	GND.for POWER
6	GND(POWER)	
7	R VIDEO IN (X)	Zi≥ 10k ohm, 0.7Vp-p
8	G VIDEO IN (X)	
9	B VIDEO IN (X)	
10	GND (RGB)	GND for R.G.B VIDEO
11	(SPARE)	
12	(SPARE)	
13	(SPARE)	
14	SERIAL DATA IN/OUT	Serial data for camera control
15	MIC IN (G)	Zi≤600 ohm, -60dBm balanced
16	MIC IN (X)	
17	MIC IN (Y)	
18	RET VIDEO OUT (X)	
19	RET VIDEO OUT (G)	
20	(SPARE)	
21	(SPARE)	
22	GRN TALLY OUT	ON:4.5V, OFF:GND or OPEN
23	(SPARE)	
24	REC ALRAM OUT	ON: +5V, OFF: +2.5V or 0V Zo>20k ohm
25	BATT IND OUT	ON: +5V,OFF:0V or OPEN Zo = 300 ohm
26	PB REF OUT	PB: +4.5V CAM:0V or OPEN
27	VTR START/STOP IN	START: +5V STOP:0V or OPEN Zi:≤10k ohm

PIN No.	SIGNAL	REMARK FOR SIGNAL
28	(SPARE)	
29	R-Y VIDEO IN (X)	Zi = 1k ohm , 0.7Vp-p
30	R-Y VIDEO IN (G)	
31	(SPARE)	
32	VTR SAVE IN	SAVE: +4.5V STAND BY:0V Zi≤10k ohm
33	AUDIO MONITOR OUT	
34	SYNC (VTR) IN	; +5Vp-p.Zi≤100 ohm
35	(SPARE)	
36	SHUTTER OUT	
37	CF IN	
38	RET VIDEO CONT IN	ENABLE:0V DISABLE: +5V or OPEN
39	POWER (+) OUT	+10.5 ~ +17V
40	POWER (+) OUT	
41	Y VIDEO IN (X)	Zi= 1k ohm ,1.0Vp-p
42	Y VIDEO IN (G)	
43	VBS IN (X)	VBS SIGNAL 1Vp-p.Zi = 75 ohm
44	VBS IN (G)	
45	(SPARE)	
46	(SPARE)	
47	(SPARE)	
48	(SPARE)	
49	B-Y VIDEO IN (X)	Zi = 1k ohm , 0.7Vp-p
50	B-Y VIDEO IN (G)	



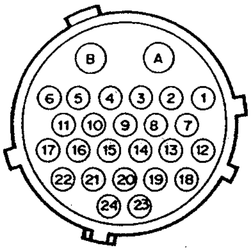
(EXT VIEW)

CCU (41 PIN)

PIN NAME	SIGNAL	REMARK FOR SIGNAL
A	POWER SENS (-) OUT	Between pin A and pin Y DC16V
B	(SPARE)	
C	(SPARE)	
D	VBS OUT (G)	GND for VBS VIDEO
E	(SPARE)	
F	PGM IN (G)	GND for PGM AUDIO
G	(SPARE)	
H	RETURN VIDEO IN (G)	GND for RETURN VIDEO
J	(SPARE)	
K	MIC OUT (Y)	-20dBs.Zo = 600 ohm
L	MIC OUT (G)	GND for MIC SIGNAL
M	H SPARE CONT IN	5.0Vp-p, Zi = 4700 ohm
N	SERIAL DATA OUT	2.5Vp-p, Zo = 470 ohm
P	SERIAL DATA (GND)	GND for SERIAL DATA
R	INCOM RECEIVE OUT (Y)	Between pin R and pin g -20dB
S	INCOM TALK/RECEIVE OUT(G)	GND for INCOM TALK/RECEIVE
T	G OUT (G)	GND for G/Y VIDEO
U	(SPARE)	
V	B OUT (G)	GND for B/B-Y VIDEO
W	SC PHASE CONT IN	

PIN NAME	SIGNAL	REMARK FOR SIGNAL
X	R OUT (G)	GND for R/R-Y VIDEO
Y	POWR SENS (+) OUT	Between pin Y and pin A DC 16V
Z	VBS OUT (X)	1.0Vp-p, Zo = 75 ohm
a	PGM IN (X)	-20dB
b	PGM IN (Y)	
c	RETURN VIDEO IN (X)	1.0Vp-p, Zo = 75 ohm
d	MIC OUT (X)	-20dBs, Zo = 600 ohm
e	SERIAL DATA IN	2.5Vp-p, Zi = 4700 ohm
f	INCOM TALK IN (X)	Between pin f and pin q, -20dB
g	INCOM RECEIVE OUT (X)	Between pin g and pin R, -20dB
h	(SPARE)	
i	Y OUT (X)	0.7Vp-p/1.0Vp-p,Zo = 75 ohm
j	B-Y OUT (X)	0.7Vp-p, Zo = 75 ohm
k	R-Y OUT (X)	0.7Vp-p, Zo = 75 ohm
m	(SPARE)	
n	POWER (+) IN	10.5 ~ 17V
p	(SPARE)	
q	INCOM TALK IN (Y)	Between pin q and pin f, -20dB
r	GND (POWER)	GND for POWER
s	(SPARE)	
t	(SPARE)	

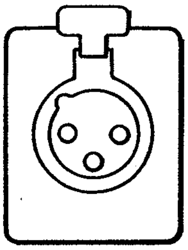
VTR (26PIN)



(EXT VIEW)

PIN No.	VTR	
	SIGNAL	REMARK FOR SIGNAL
1	COMPOSITE VIDEO OUT (X)	1.0Vp-p,75 ohm
2	COMPOSITE VIDEO OUT (G)	
3	Y OUT (G)	1.0Vp-p,75 ohm
4	Y OUT (X)	
5	R-Y OUT (X)	0.7Vp-p,75 ohm
6	R-Y OUT (G)	
7	B-Y OUT (X)	0.7Vp-p,75 ohm
8	B-Y OUT (G)	
9	MIC OUT (X)	-60dBs, 600 ohm
10	MIC OUT (Y)	
11	MIC OUT (G)	
12	VTR START/STOP OUT	START : 4.5 ± 0.5Vdc STOP : 0 ± 0.5Vdc
13	BATTERY ALARM IN	(Note 1)
14	(SPARE)	
15	REC/ALARM IN	(Note 2)
16	(SPARE)	
17	SHIELD	
18	PB VIDEO IN (X)	1.0Vp-p,75 ohm
19	PB VIDEO IN (G)	
20	POWER SAVE OUT/ AUDIO MONITOR IN	SAVE: 4.5 ± 0.5Vdc (across 10k ohm) STANDBY: 9.0 ± 0.5Vdc (accross 10k ohm) MONITOR: -6dBs,750 ohm
21	(SPARE)	
22	COLOR FRAMING PULSE OUT	This signal is not used in VTR.
23	(SPARE)	
24	(SPARE)	
A	UNREG +12V IN	10.6 ~ 17.0V
B	UNREG GND	

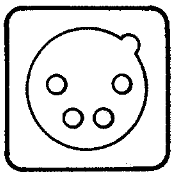
MIC IN (3PIN)



(EXT VIEW)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GND	600ohm, -60dB
2	MIC IN (Y)	
3	MIC IN (X)	

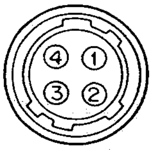
DC IN (4PIN)



(EXT VIEW)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) IN	10.5 ~ 17.0V

DC OUT (4PIN)

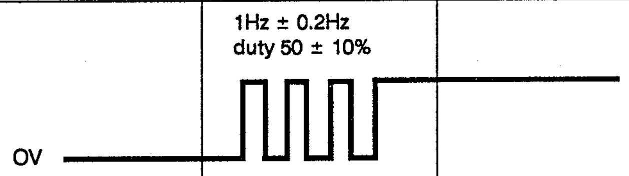


(EXT VIEW)

PIN No.	SIGNAL	REMARK FOR SIGNAL
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) OUT	10.5 ~ 17.0V

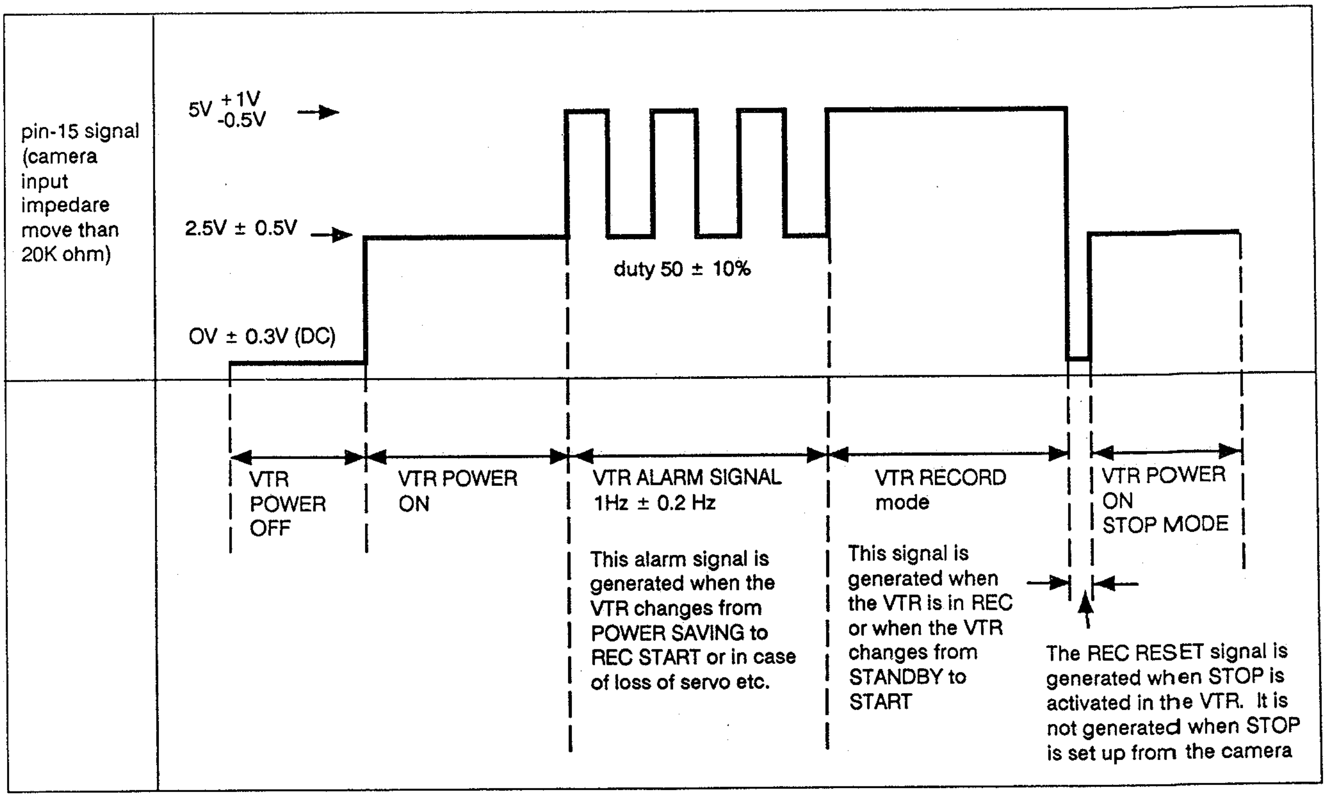
Note 1. Signal at Pin 13

Battery voltage detection and warning signal generating circuits are located within the VTR. This signals are supplied from the VTR to the camera to either blink or light the LED at the bottom of the viewfinder.

BATTERY TERMINAL ADAPTOR (VTR INTERNAL BATTERY)	DC12V ~ 11.1V	DC11.1V ~ 10.8V	PIN 10 TURNS HIGH AT DC 10.8V, 10.6V DC or below the VTR Internal Power is cut off so that the Battery Power is sent to Pin 13.
PIN 13 OUTPUT FROM VTR	 OV	1Hz ± 0.2Hz duty 50 ± 10%	DC2 ~ 3V across 300 ohm
LED IN VIEWFINDER	NEITHER BLINKS NOR LIGHTS	BLINKS AT 1Hz	LIGHTS

Note 2. Signal at Pin 15

When the VTR is ON the input to the camera at pin 15 is 2.5V DC. In VTR record mode the voltage is 5V DC. When servo is not applied or if alarm signals are 1Hz signal (2.5 Vp-p with 2.5V DC as reference) is sent to the camera. At the tape end when the VTR enters Stop mode or when setting up the Stop mode from the VTR, OV DC is generated from 10 msec to 100 msec (called REC RESET). After REC RESET the signal level returns to 2.5V DC.


pin-15 signal (camera input impedare move than 20K ohm)
5V +1V -0.5V
2.5V ± 0.5V
OV ± 0.3V (DC)
duty 50 ± 10%
VTR POWER OFF
VTR POWER ON
VTR ALARM SIGNAL 1Hz ± 0.2 Hz
VTR RECORD mode
VTR POWER ON STOP MODE

This alarm signal is generated when the VTR changes from POWER SAVING to REC START or in case of loss of servo etc.

This signal is generated when the VTR is in REC or when the VTR changes from STANDBY to START

The REC RESET signal is generated when STOP is activated in the VTR. It is not generated when STOP is set up from the camera

2-3-2. Connector

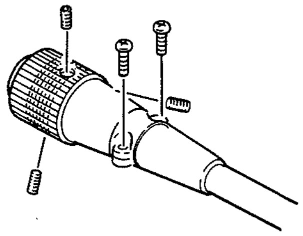
When cables with connectors are set to the respective connectors on the connector panel during installation or service, the specified or equivalent connectors with cables, or the specified cable assemblies should be used, these are listed as follows;

Connector function	Parts No, and name of connector with cable
TEST OUT (BNC)	1-560-069-11 PLUG, BNC or UGC-0.5 cable assembly (Cable length 1.5m, optional)
VF (20P, FEMALE)	1-558-609-11 PLUG, 20P, MALE
LENS (12P, FEMALE)	1-562-356-11 PLUG, 12P, MALE
REMOTE (6P, MALE)	1-557-406-11 REMOTE CONTROL CABLE (Cable length 10m)
50-PIN CONNECTOR (50P, MALE)	1-562-083-00 PLUG, 50P, FEMALE (Contained within CA-3A, CA-50, and BVV-5)

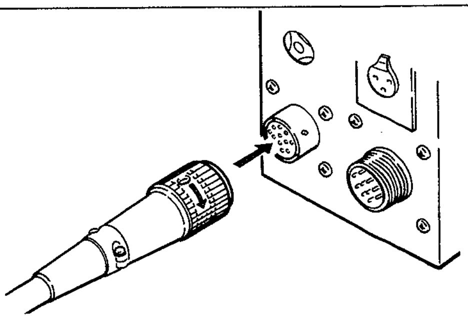
2-3-3. Removal of the CCZ, CCZQ connectors

CCZ, CCZQ Connectors (Removal of the connector)

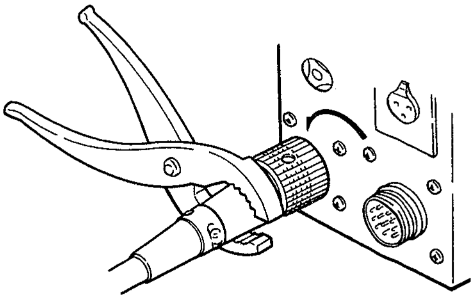
Step 1.
Remove the three hexagonal setscrews and the two setscrews.



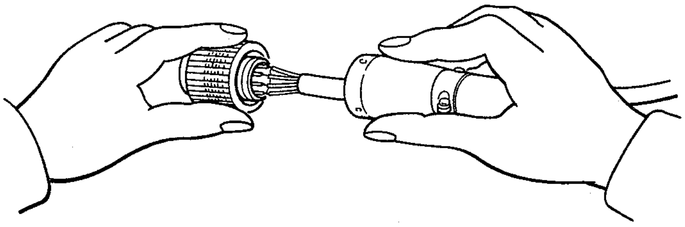
Step 2.
Fix the CCZ connector at the camera or VTR connector.



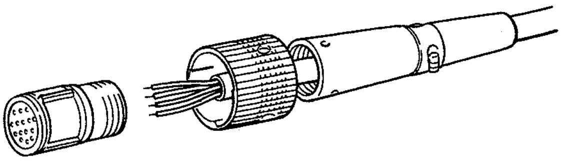
Step 3.
Rotate the CCZ connector counterclockwise by the plier and loosen it.



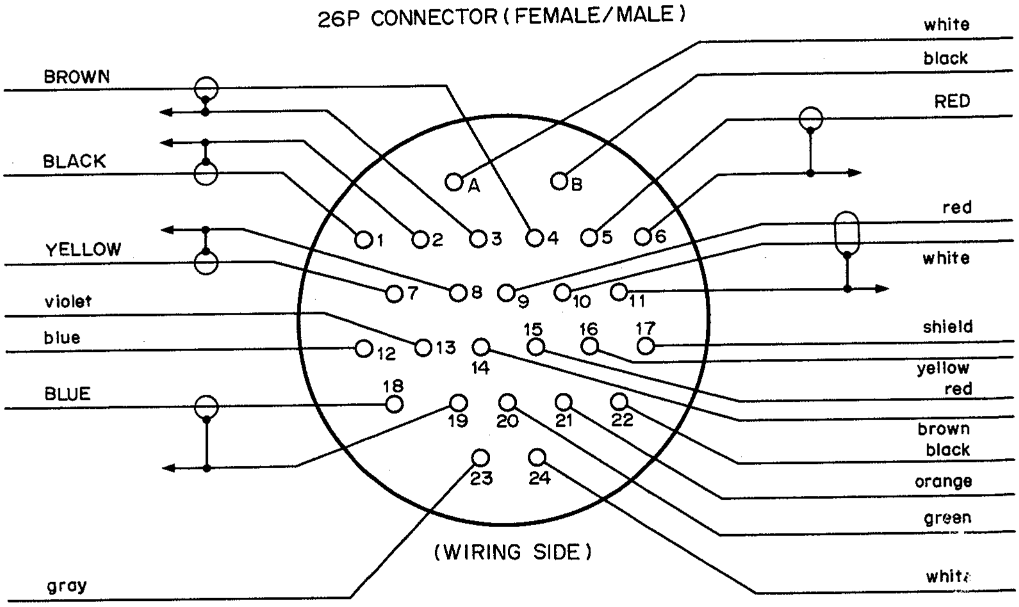
Step 4.
It can be removed by hand and unsolder.



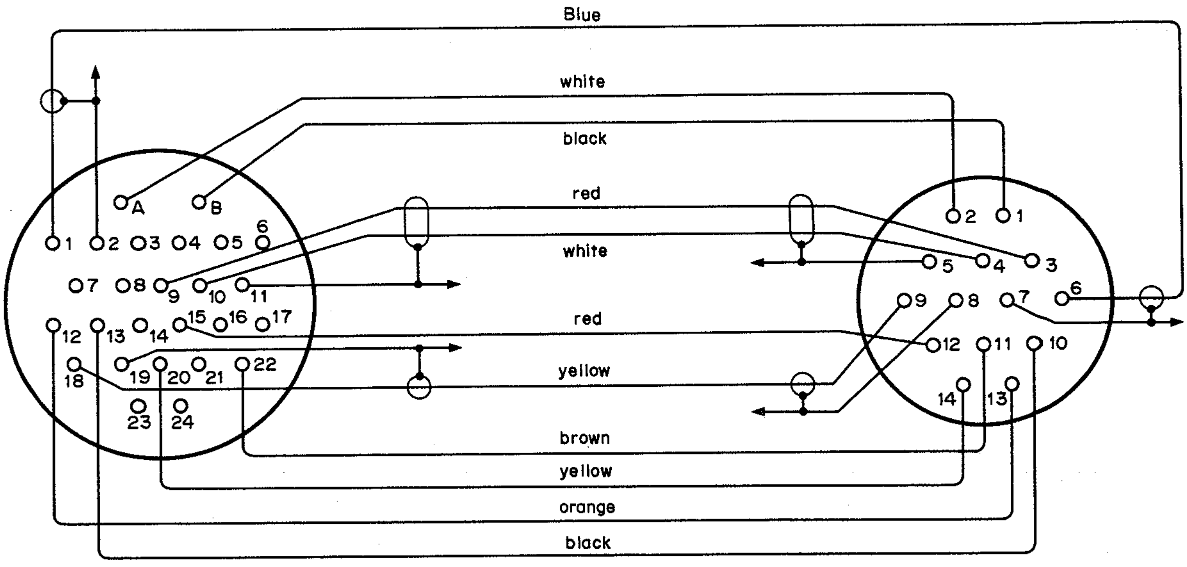
Step 5.
It can be broken up as shown in Figure.



CCZ cable (wiring diagram)


26P CONNECTOR (FEMALE/MALE)
BROWN
BLACK
YELLOW
violet
blue
BLUE
gray
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
(WIRING SIDE)
white
black
RED
red
white
shield
yellow
red
brown
black
orange
green
white

CCZQ cable (wiring diagram)


Blue
white
black
red
white
red
yellow
brown
yellow
orange
black
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
2
1
5
4
3
9
8
7
6
12
11
10
14
13

26P CONNECTOR (FEMALE)
(WIRING SIDE)

14P CONNECTOR (MALE)
(WIRING SIDE)

2-4. POWER SUPPLY

Power sources DC +10.6V to +7V

1. DC voltage is supplied from the camera control unit CCU-350 or VTR via CCW-B cable.
2. DC voltage supplied from the AC adaptor AC-500 or DC battery DC-300/310 via EXT DC IN terminal.

2-5. OPERATIONAL ACCESSORIES

Camera cable	CCZ - 2 (2m) CCZ - 10 (10m)

Used for connecting the CA-50/50P and BVV-1/1PS/1A/APS/5/5PS VTR.

Camera cable	CCZ-2 (2m) CCZQ-10 (10m)

Used for connecting the CA-50/50P and portable VTR (BVU-110/110PS/150/150PS, BVH-500, etc.).

Camera cable	CCW - B25 (25m) CCW - B50 (50m) CCW - B100 (100m)

Used for connecting the CA-50/50P and CCU-350/350P.

Color video camera	BVP-50/50P
Camera control unit	CCU-350/350P
Battery case DC-300	(For battery BP-90)
Battery case DC-210	(For battery BP-90)
Battery case DC-310	(For battery NP-1A)

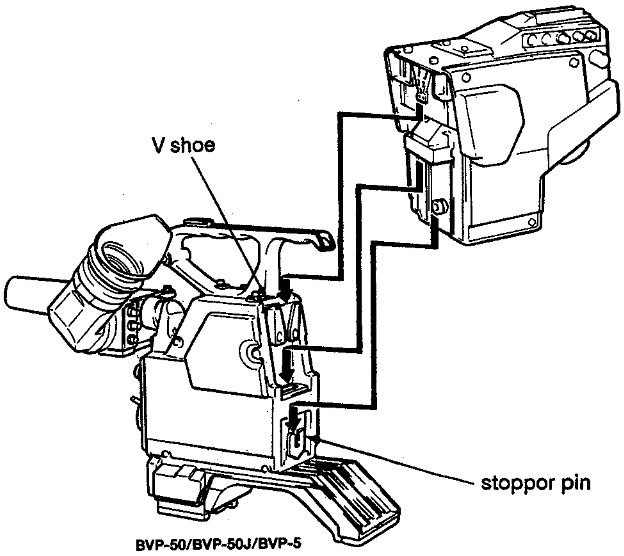
2-6. OPERATING CONDITIONS

Operating temperature	–20°C to +45°C
Storage temperature	–20°C to +60°C
Humidity	Non condense.

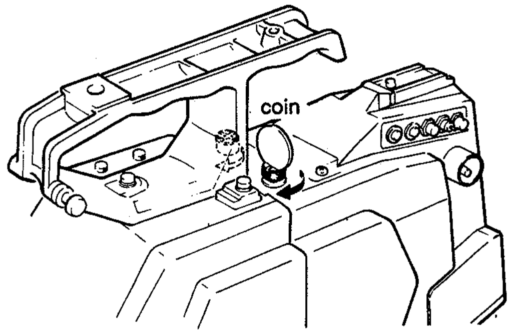
2-7. SET-UP

2-7-1. Set up with the BVP-50/50P camera.

1. Attach the CA-50/50P to the camera.


V shoe
stoppor pin
BVP-50/BVP-50J/BVP-5

2. Tighten the two screws by using a coin securely.



2-7-2. Switches Setting on the Board

[IF-192 board]

- S1

1	N←→P	Set this switch to "N" for NTSC and to "P" for PAL model.
2	BAUDS RATE	Selects the data transfer speed.
3	GAIN	Selects a GAIN UP indication. This is set to "0/9/18dB" at the factory.
4	NORM←→EXT	Set this switch to "EXT" only when the board kit BKP-501 is used. Normally set to "NORM".

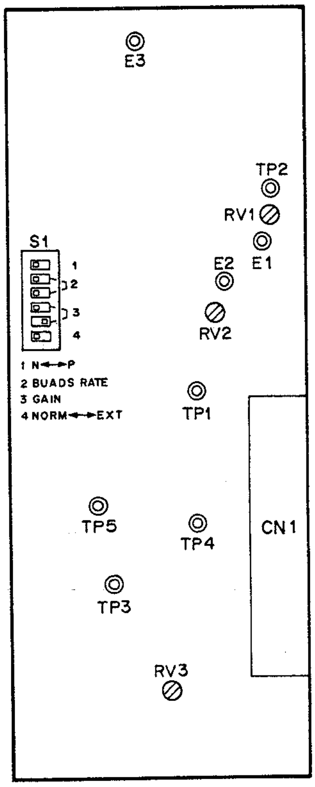
[AU-107 board]

- S1 (MIC POWER ON/OFF)

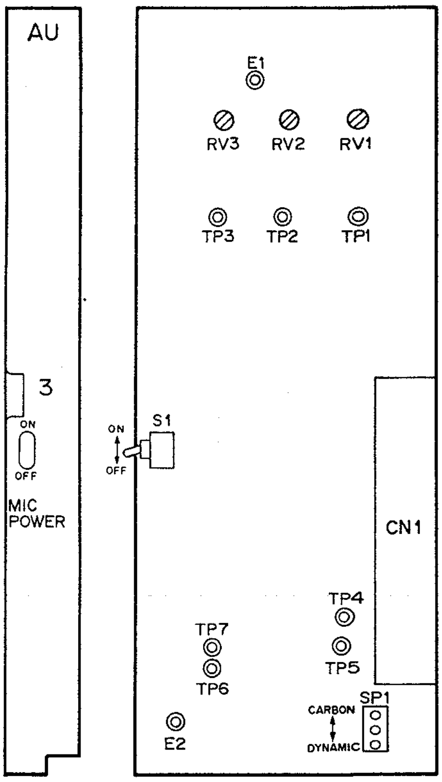
When turning on the S1 switch, the dc voltage (+48V) is supplied from the MIC IN connector.

- SP1 (CARBON/DYNAMIC)

This is the connector for selecting the input impedance and gain of the intercom amplifier.
Both carbon-type and dynamic-type microphones can be used for intercommunication.


E3
TP2
RV1
S1
1
2
3
4
E2
E1
RV2
1 N←→P
2 BUADS RATE
3 GAIN
4 NORM←→EXT
TP1
TP5
TP4
CN1
TP3
RV3

IF-192 BOARD (COMPONENT SIDE)


AU
E1
RV3
RV2
RV1
TP3
TP2
TP1
3
ON
OFF
MIC POWER
ON
OFF
S1
CN1
TP4
TP7
TP5
TP6
SP1
CARBON
DYNAMIC
E2

AU-107 BOARD (COMPONENT SIDE)

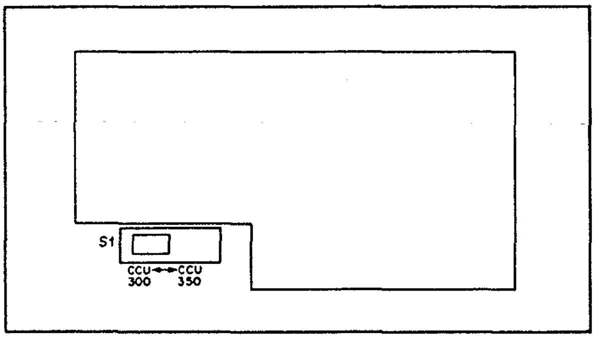
[AU-108 board]

- S1 (GAIN) switch

Serial No. 10121 and higher (UC)
10126 and higher (EK)

MIC line transfer signal of CCU-350 differs from that of CCU-300.
To adjust their levels, this switch selects the gain.
Each MIC line level is as follows;

CCU-350 : –20 dB
CCU-300 : –30 dB

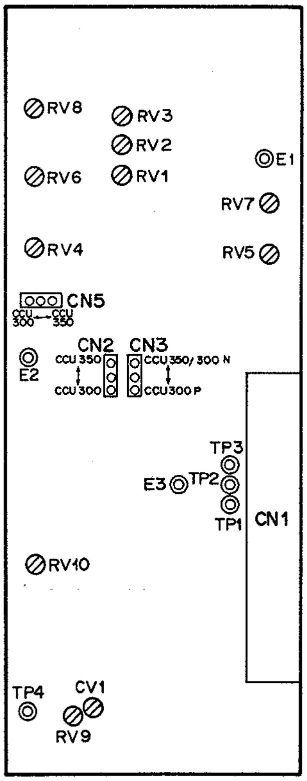


AU –108 BOARD(COMPONENT SIDE)

2-8. WHEN USING THE CCU-300/300P

The Sony CA-50/50P camera adaptor is available for connecting the Betacam camera BVP-50/50P and the CCU-350/350P camera control unit.

When changing the connection of the connector CN2, CN3, and CN5 on the IF-191 board, the CA-50/50P camera adaptor is able to connect the CCU-300/300P camera control unit. Moreover, replace the IF-192 board with the IF-208 board in the board kit BKP-502 (optional accessory).


RV8
RV3
RV2
E1
RV6
RV1
RV7
RV4
RV5
CN5
CCU 300
CCU 350
CN2
CN3
E2
CCU 350
CCU 300
CCU 350/300 N
CCU 300 P
TP3
E3
TP2
TP1
CN1
RV10
TP4
CV1
RV9

IF-191 BOARD (COMPONENT SIDE)

SECTION 3
SERVICE INFORMATION

3-1. CABINET REMOVAL

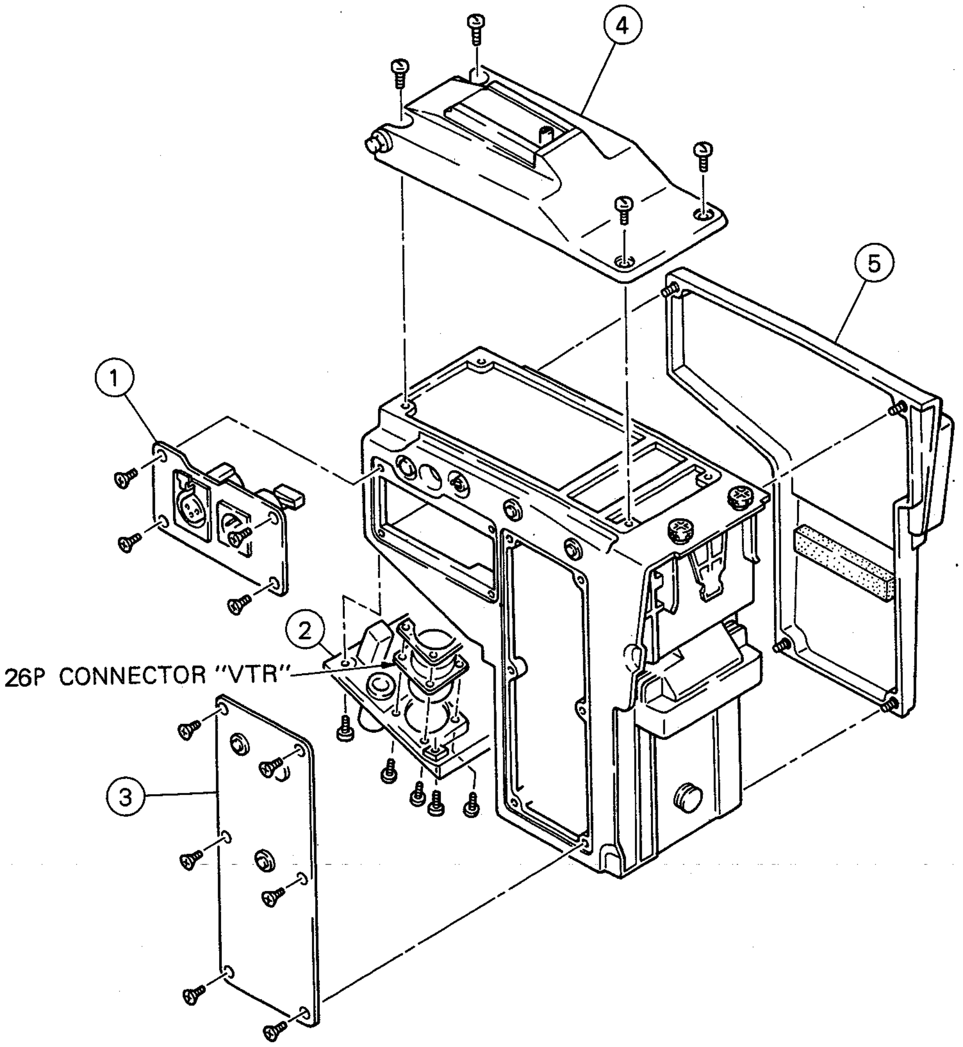
[1] XLR plate removal
Remove the four screws (+RK3 × 6) fixing the XLR plate, and remove the XLR plate.

[2] Connector bracket removal
- Remove the four screws (+B3 × 8) fixing the 26-pin connector (VTR).
- Remove the four screws (+B3 × 8) fixing the connect bracket, and remove it.

[3] Left side cover removal
Remove the six screws (+RK3 × 6) fixing the left side cover, and remove it.

[4] Upper cover removal
Remove the four screws (+P4 × 10) fixing the upper cover, and remove it.

[5] Right side cover removal
Remove the four screws (M4 × 8) fixing the right side cover, and remove it.



3-2. SERVICING PRECAUTION

3-2-1. Precautions on Replacement of CAMERA connector (50p connector)

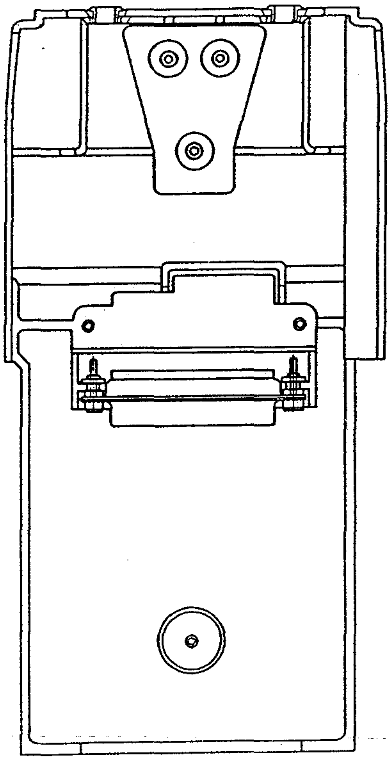
The VTR connector (50 pin connector) is attached using a high-precision special tool (CV positioning) so as to keep the accurate positioning relation with camera mount (C shoe) and to dock with any of BVP-50/50P. Avoid to loosen or remove the screws for 50P connector, C SHOE and stopper (in all, eight screws). It is necessary to adjust using a jig, when the above parts are replaced. For replacement of the CAMERA connector (50 pin connector), contact your Sony dealer.

3-2-2. PROM IC

IC9 on the IF-192 board is PROM IC.
This PROM IC has a suffix to its original designation as follows.

IC9	HN-27C64G -

Never use an IC having no suffix to its original designation. (Its memory has not been programmed) PROM IC is attached to IC8 via socket.



3-2-3. Precaution on Replacement Parts

1. **Safety Related on Components Warning**
   Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. **Standardization of Parts**
   Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "accomodating the improved parts and/or engineering change" or "standardization of genuine parts". This manual's exploded view and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present". Regarding engineering parts and diagrams changes in our engineering department, refer to SECTION 9. CHANGE INFORMATION.

3. **Stocked of Parts**
   The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "0" will be processed, but allow for additional delivery time.

4. **Units of Capacitors, Inductors, and Resistors**
   The following units are omitted in the shematic diagrams, exploded views, and electrical parts list unless otherwise specified;
   Capacitor ; μF
   Inductor ; μH
   Resistor ; Ω

3-3. TOOLS AND JIGS

Part No.	Description
A-7520-253-A	Extension board "EX-108"

SONY

NOV. 1989

SERVICE ENGINEERS

RE: UPDATE INFORMATION

We'll issue the UPDATE INFORMATION instead of revised manual every time when the service manual is revised.
This UPDATE INFORMATION consists on pages which has some changes.
Please refer the attached details.

At the first distribution of UPDATE INFORMATION for each models, we send the master manual also with UPDATE INFORMATION after second time, we send only UPDATE INFORMATION without revised manual, so please note the information you need on the master manual, if any.

Y. ORIHARA
Service Engineering Department

DETAIL OF UPDATE INFORMATION

MODEL FOR THIS ISSUE

All models of BC. and INST

ACTION OF UPDATE INFORMATION

ACTION is explanation of the action of service engineer who receives UPDATE INFORMATION.

— Add (action)
— Replace (In having the mistake)
— Remove (Delete each page)

INDICATION OF THE REVISION

Way of indication: 1st Rev 4 → 1R4
Place of indication: At the bottom of binding

CHANGING EDITION

As the master manual distributes when it has new edition, we don't issue the UPDATE INFORMATION.
But the only cover letter of UPDATE INFORMATION is issued with the new edition manual.
Specify about having the editions change on the cover letter, and mention the point of change roughly.

MARKING

1. Change of letter

- Put the " * * " mark around the reference number of changing item.
- If half of page or more changes, mark at near the changing part and make a circle around it.
- If all of page changes, mark above of title.

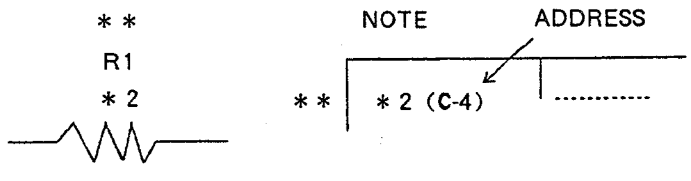
2. Change of Illustration

- If illustration has the title, mark above of title.
  If not, mark at the top left side of illustration plainly.
- When the whole illustration has change, mark at the top left side out of the frame of illustration.
- In other case, mark at the plain position.

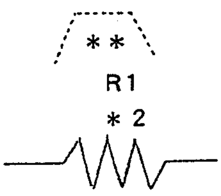
3. Change of Circuit

- In the case of having the note, mark at the changing part of note, and mark also at the changing part of circuit.
  The address is in the note so as to search the changing part instantly.
- In the case of not having the note, indicate by " /‾‾‾‾‾\ ", " _ _ _ _ _/ " nearly changing part, and mark. (with middle bold line)
- Example of marking for the circuit

[with note]



[without note]



When the circuit has the Serial No., mark at the above of Serial No. frame.

UPDATE INFORMATION

DATE JAN/11/90
MODEL NAME CA–55 (UC) Operation and Maintenance Manual
REVISION NO. 1st Edition Revised 5

Rev. No.	S. No.	Action	Page
E1 R5	10136– 10155	Add	B–1, B–5, B–6
		Add	C–9 to C–12, C–25, C–26, C–29, C–30

1) "Rev. No." is the corresponding revised number of the service manual for the customer.
E1 R1 means 1st Edition Revised 1.
"Serial Number" is the serial number range which the Rev. No. in the left column covers.

2) The changed portions are indicated by doted line and/or "**" (double asterisk).

3) "N. A." in the serial number column means there is no machine covering this revision.
The machine for the different market, e,g. Japan, may exist for this manual revision.

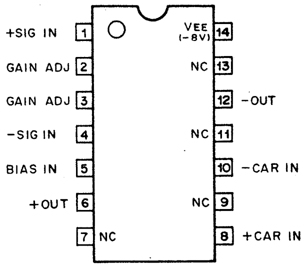
SECTION B
SEMICONDUCTOR PIN ASSIGNMENTS

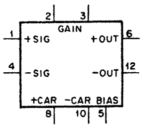
The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE
1S2835	B-2
1S2837	B-2
1SS123	B-2
1SS97	B-2
1SZ46A	B-2
1SZ47A	B-2
1T33	B-2
2SA1226	B-2
2SA1330	B-2
2SA1385	B-2
2SA1462	B-2
2SA812	B-2
2SB733	B-2
2SC1009A	B-2
2SC1623	B-2
2SC2026	B-2
2SC2238B	B-2
2SC2440	B-2
2SC2668	B-2
2SC2714	B-2
2SC2757	B-2
2SC2758	B-2
2SC3115	B-2
2SC3360	B-2
2SC634SP	B-2
2SD1033	B-2
2SD773	B-2
2SK94	B-2
74F175PC	B-3
CA3102E-S	B-3
CXA1165M	B-3
DTC114EK	B-2
ERA82-004	B-2
ERB81-004	B-2
ESAC82-004	B-2
FC53M	B-2
GM-3	B-2
HD63B05Y2F	B-3
HM6264LFP-15T	B-4
HN27C64G-20	B-4
HSM88AS	B-2
** MC14040BF	B-5
** MC14053BF	B-6
NJM1496M	B-5
NJM4556M-A	B-5
NJM4560M	B-5
NJM78L05A	B-5
NJM78M09A	B-5
RD ? ?ES-B ?	B-2
RD ? ?E-B ?	B-2
RD ? ?E-L ?	B-2
RD ? ?FB ?	B-2
TA7303P	B-5
TC4040BF	B-5
TC4049BF	B-6
TC4053BF	B-6
TC4073BF	B-6
TC40H000F	B-6
TC40H163F	B-6
TC4538BF	B-6
TC4SU69F	B-6
TC504013BF	B-7
TC74HC4538F	B-6
TL062CPS	B-7
TL082CPS	B-7
TL1451ACNS	B-7
TL7700CPS	B-7
uPC393G2	B-7

NJM1496M (JRC) FLAT PACKAGE

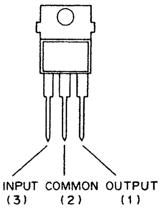
BALANCED MODULATOR/DEMODULATOR
- TOP VIEW -


+SIG IN 1
GAIN ADJ 2
GAIN ADJ 3
-SIG IN 4
BIAS IN 5
+OUT 6
7 NC
VEE (-8V) 14
NC 13
12 -OUT
NC 11
10 -CAR IN
NC 9
8 +CAR IN

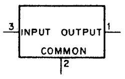

2
3
GAIN
1 +SIG
+OUT 6
4 -SIG
-OUT 12
+CAR -CAR BIAS
8
10
5

NJM78M ? ?A (JRC)

POSITIVE VOLTAGE REGULATOR (500mA)
- FRONT VIEW -

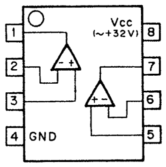

INPUT (3)
COMMON (2)
OUTPUT (1)

5V	NJM78M05A
6V	NJM78M06A
8V	NJM78M08A
9V	NJM78M09A
12V	NJM78M12A
15V	NJM78M15A
18V	NJM78M18A
20V	NJM78M20A
24V	NJM78M24A


3
INPUT
OUTPUT
1
COMMON
2

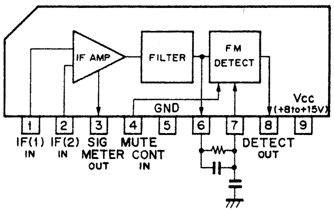
NJM4556M-A (JRC) FLAT PACKAGE

OPERATIONAL AMPLIFIER
- TOP VIEW -


1
2
3
4 GND
Vcc (~+32V) 8
7
6
5

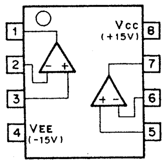
TA7303P (TOSHIBA)

FM IF AMPLIFIER/DETECTOR
- SIDE VIEW -


IF AMP
FILTER
FM DETECT
GND
Vcc (+8to+15V)
1
2
3
4
5
6
7
8
9
IF(1) IN
IF(2) IN
SIG METER OUT
MUTE CONT IN
DETECT OUT

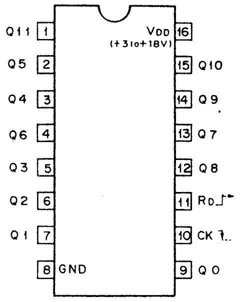
NJM4560M (JRC) FLAT PACKAGE

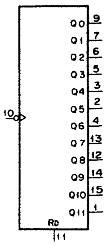
OPERATIONAL AMPLIFIER
- TOP VIEW -

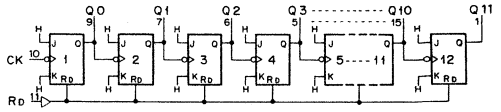

1
2
3
4 VEE (-15V)
Vcc (+15V) 8
7
6
5

✱✱ MC14040BF (MOTOROLA) FLAT PACKAGE

C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER
- TOP VIEW -


Q11 1
Q5 2
Q4 3
Q6 4
Q3 5
Q2 6
Q1 7
8 GND
VDD (+3to+18V) 16
15 Q10
14 Q9
13 Q7
12 Q8
11 RD
10 CK
9 Q0


Q0 9
Q1 7
Q2 6
Q3 5
Q4 3
Q5 2
Q6 4
Q7 13
Q8 12
Q9 14
Q10 15
Q11 1
10
RD
11


Q0
9
Q1
7
Q2
6
Q3
5
Q10
15
Q11
1
CK 10
RD 11
H
J
Q
K
RD
1
2
3
4
5----11
12

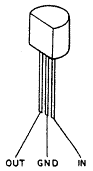
COUNT	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	0	0	0	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
4095	1	1	1	1	1	1	1	1	1	1	1	1

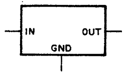
RD	Q11--------Q0
1	ALL LOW
0	COUNT

0; LOW LEVEL
1; HIGH LEVEL

NJM78L ? ?A (NEC)

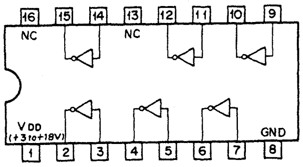
POSITIVE VOLTAGE REGULATOR (100mA)

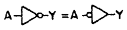




OUTPUT VOLTAGE	NJM78L??A	uA78L??ACL	uA78L??AWV	uPC78L??J	AN78L??
+2.6V	NJM78L02A	uA78L02ACL	uA78L26AWV	---------	-------
+4V	---------	----------	----------	---------	AN78L04
+5V	NJM78L05A	uA78L05ACL	uA78L05AWV	uPC78L05J	AN78L05
+6V	NJM78L06A	----------	----------	---------	AN78L06
+6.2V	---------	uA78L06ACL	uA78L62AWV	---------	-------
+7V	---------	----------	----------	---------	AN78L07
+8V	NJM78L08A	uA78L08ACL	----------	uPC78L08J	AN78L08
+8.2V	---------	----------	uA78L82AWV	---------	-------
+9V	NJM78L09A	uA78L09ACL	uA78L09AWV	---------	AN78L09
+10V	---------	uA78L10ACL	----------	uPC78L10J	AN78L10
+12V	NJM78L12A	uA78L12ACL	uA78L12AWV	uPC78L12J	AN78L12
+15V	NJM78L15A	uA78L15ACL	uA78L15AWV	uPC78L15J	AN78L15
+18V	NJM78L18A	----------	uA78L18AWV	---------	AN78L18
+20V	NJM78L20A	----------	----------	---------	AN78L20
+24V	NJM78L24A	----------	uA78L24AWV	---------	AN78L24

TC4049BF (TOSHIBA) FLAT PACKAGE
C-MOS INVERTING TYPE BUFFER/CONVERTER
- TOP VIEW -


16
15
14
13
12
11
10
9
NC
NC
VDD
(+3 to+18V)
GND
1
2
3
4
5
6
7
8

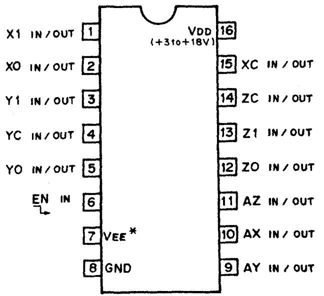


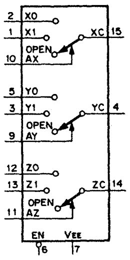
Y = Ā

A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

✱✱ MC14053BF (MOTOROLA) FLAT PACKAGE
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
- TOP VIEW -


X1 IN/OUT 1
XO IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
YO IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to+18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 ZO IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT

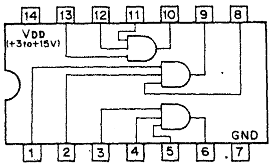

2 XO
1 X1
XC 15
OPEN
10 AX
5 YO
3 Y1
YC 4
OPEN
9 AY
12 ZO
13 Z1
ZC 14
OPEN
11 AZ
EN
VEE
6
7

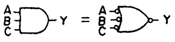
VEE* ; VDD − VEE = +3 to+18V

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

TC4073BF (TOSHIBA) FLAT PACKAGE
C-MOS 3-INPUT POSITIVE AND GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3 to+15V)
GND
1
2
3
4
5
6
7

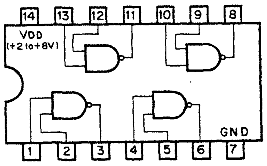


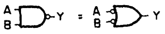
$Y = A \cdot B \cdot C = \overline{\overline{A}+\overline{B}+\overline{C}}$

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

TC40H000F (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+2 to+8V)
GND
1
2
3
4
5
6
7

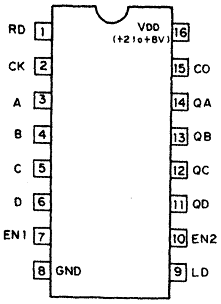


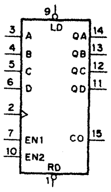
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC40H163F (TOSHIBA) FLAT PACKAGE
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
- TOP VIEW -

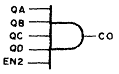

RD 1
CK 2
A 3
B 4
C 5
D 6
EN1 7
8 GND
VDD (+2 to+8V) 16
15 CO
14 QA
13 QB
12 QC
11 QD
10 EN2
9 LD


9
LD
3 A
4 B
5 C
6 D
2
7 EN1
10 EN2
RD
1
QA 14
QB 13
QC 12
QD 11
CO 15

MODE SELECTION

CONT. INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

CARRY OUTPUT "CO"


QA
QB
QC
QD
EN2
CO

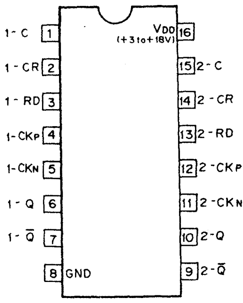
CO GOES HIGH WHEN EN2 IS HIGH AND COUNT IS "15."

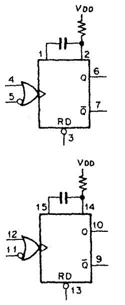
COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
⋮	⋮	⋮	⋮	⋮
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

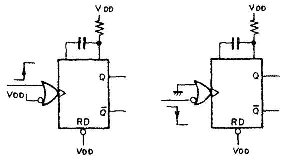
TC4538BF (TOSHIBA) FLAT PACKAGE
TC74HC4538F (TOSHIBA) FLAT PACKAGE
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
- TOP VIEW -


1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD (+3 to+18V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄

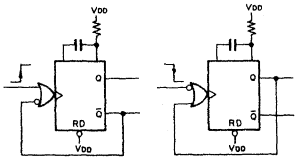

VDD
1
2
4
5
Q 6
Q̄ 7
RD
3
VDD
15
14
12
11
Q 10
Q̄ 9
RD
13

OUTPUT PULSE WIDTH=CR

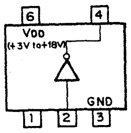
RETRIGGERABLE M.M.V

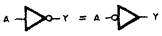

VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

NON-RETRIGGERABLE M.M.V


VDD
VDD
Q
Q̄
RD
VDD
Q
Q̄
RD
VDD

TC4SU69F (TOSHIBA) FLAT PACKAGE
C-MOS INVERTER BUFFER
- TOP VIEW -


6
4
VDD
(+3V to+18V)
GND
1
2
3



Y = Ā

A	Y
0	1
1	0

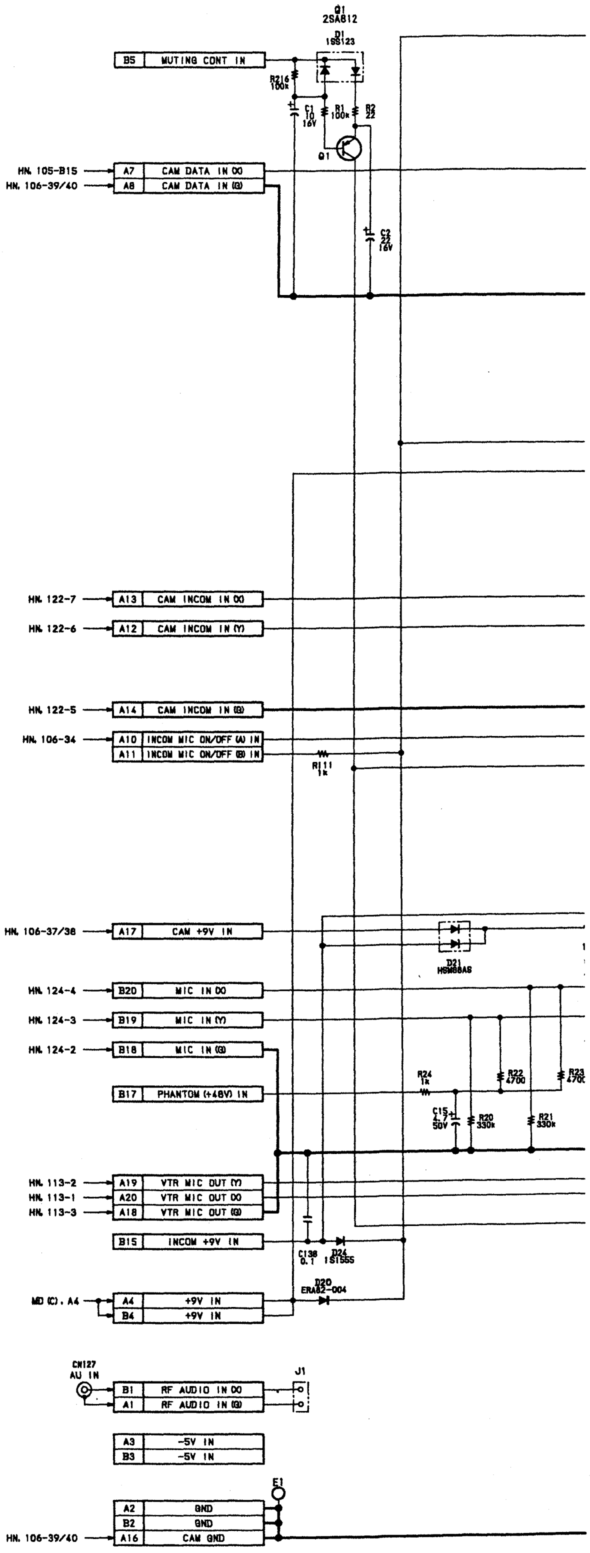
0 ; LOW LEVEL
1 ; HIGH LEVEL

TR-47 BOARD

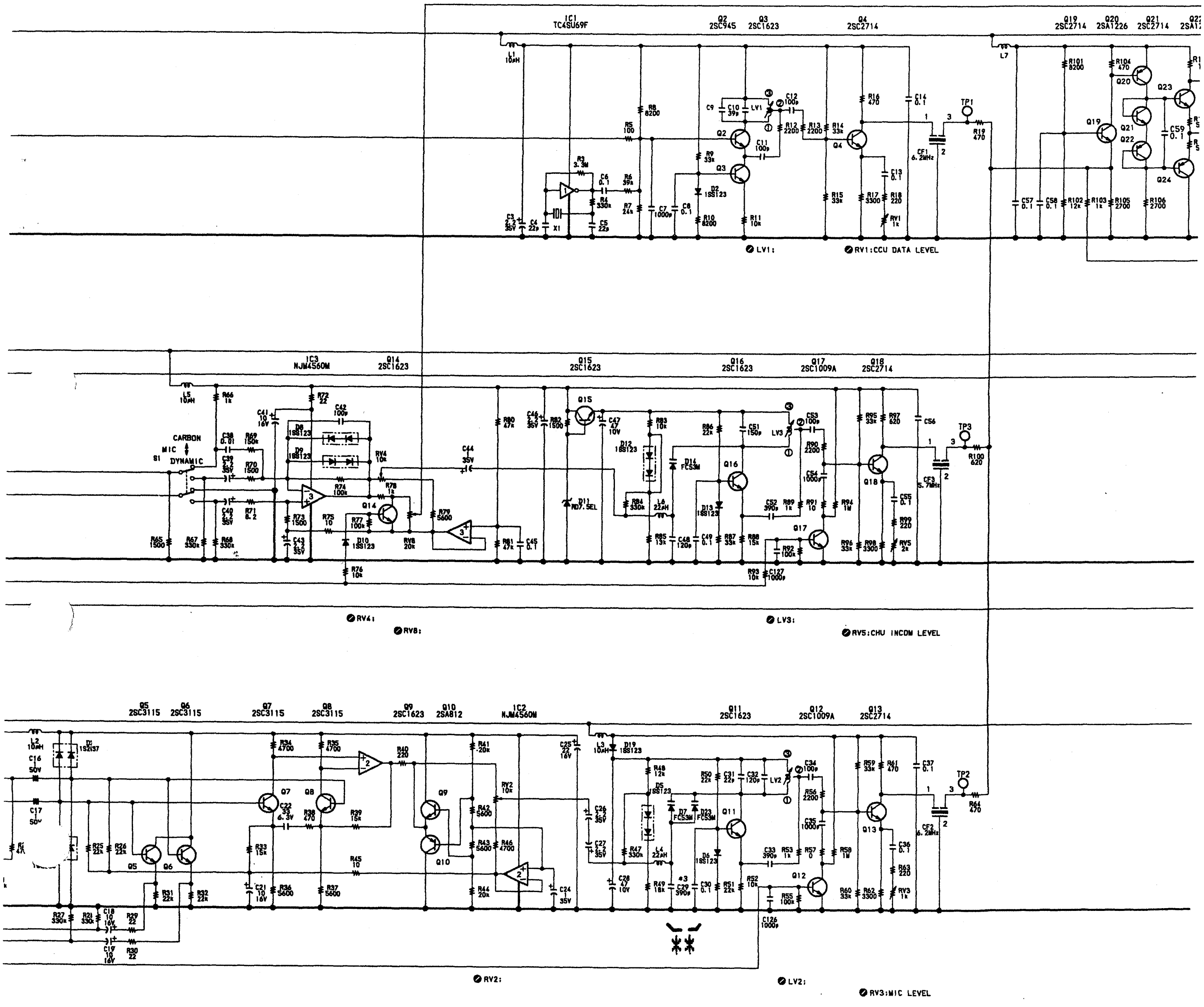
TRANSMITTER FROM CAMERA TO CCU

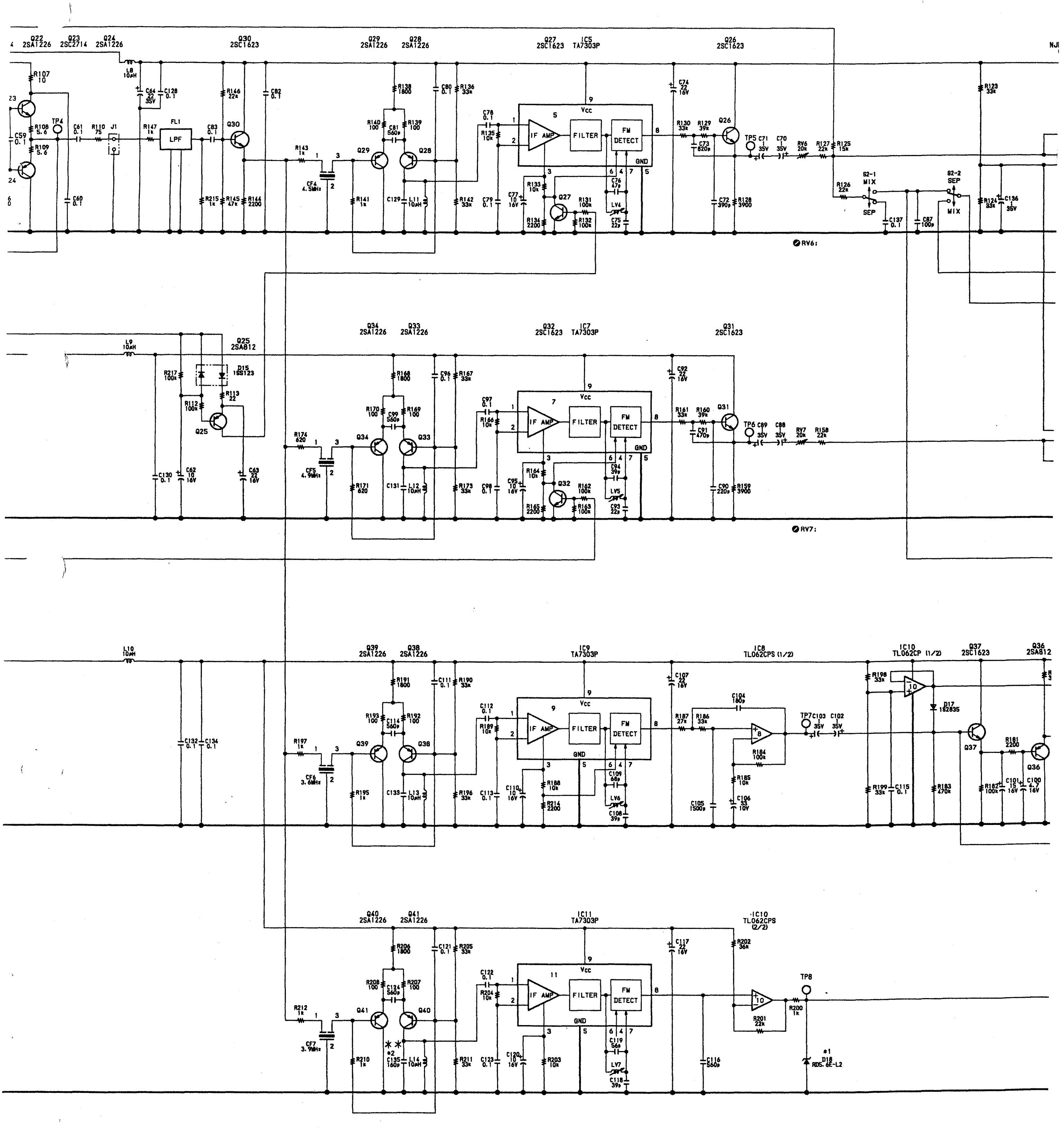
* NOTE

	*MARK	ADDRESS	REF No.	DESCRIPTION	EFFECTIVE SER NO.
	*1		C69	DELETED	10041- (UC) 30016- (J) 40121- (EK)
		C-5	C138	0.01 → 0.1	
**	*2	H-6	C135	180P → 160P	10041- (UC) 30026- (J) 40171- (EK)
**	*3	H-3	C29	220P → 390P	10126- (UC) 30171- (J) 40391- (EK)

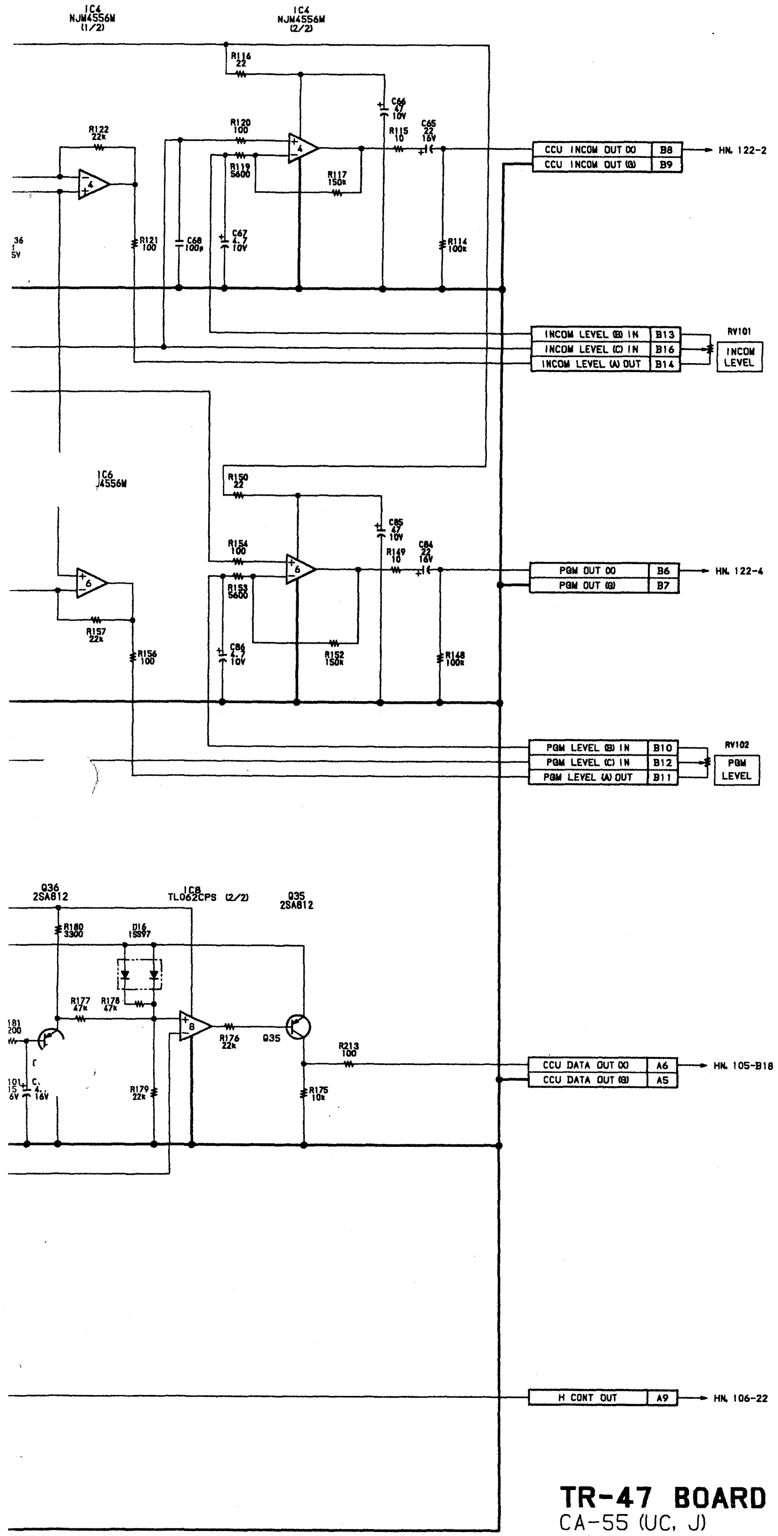

Q1
2SA812
D1
1SS123
B5
MUTING CONT IN
R216
100k
C1
10
16V
R1
100k
R2
22
Q1
HN. 105-B15
HN. 106-39/40
A7
CAM DATA IN (X)
A8
CAM DATA IN (G)
C2
22
16V
HN. 122-7
A13
CAM INCOM IN (X)
HN. 122-6
A12
CAM INCOM IN (Y)
HN. 122-5
A14
CAM INCOM IN (G)
HN. 106-34
A10
INCOM MIC ON/OFF (A) IN
A11
INCOM MIC ON/OFF (B) IN
R111
1k
HN. 106-37/38
A17
CAM +9V IN
D21
HSM88AS
HN. 124-4
B20
MIC IN (X)
HN. 124-3
B19
MIC IN (Y)
HN. 124-2
B18
MIC IN (G)
B17
PHANTOM (+48V) IN
R24
1k
R22
4700
R23
4700
C15
4.7
50V
R20
330k
R21
330k
HN. 113-2
A19
VTR MIC OUT (Y)
HN. 113-1
A20
VTR MIC OUT (X)
HN. 113-3
A18
VTR MIC OUT (G)
B15
INCOM +9V IN
C138
0.1
D24
1S1555
D20
ERA82-004
MD (C). A4
A4
+9V IN
B4
+9V IN
CN127
AU IN
B1
RF AUDIO IN (X)
A1
RF AUDIO IN (G)
J1
A3
-5V IN
B3
-5V IN
E1
A2
GND
B2
GND
HN. 106-39/40
A16
CAM GND

CA-55 (UC) 1-R3
CA-55 (J) 1-R3
CA-55P (EK) 1-R5


IC1 TC4SU69F
Q2 2SC945
Q3 2SC1623
Q4 2SC2714
Q19 2SC2714
Q20 2SA1226
Q21 2SC2714
L1 10μH
L7
R8 8200
R5 100
R3 3.3M
C6 0.1
R6 39k
R4 330k
R7 24k
C7 1000p
C8 0.1
C5 22p
C4 22p
X1
C3 2.2 35V
C9
C10 39p
LV1
C12 100p
R12 2200
R13 2200
R14 33k
R16 470
C14 0.1
TP1
CF1 6.2MHz
R19 470
C11 100p
R9 33k
D2 1SS123
R10 8200
R11 10k
R15 33k
R17 3300
R18 220
C13 0.1
RV1 1k
R101 8200
R104 470
Q23
C59 0.1
Q22
Q24
C57 0.1
C58 0.1
R102 12k
R103 1k
R105 2700
R106 2700
LV1;
RV1:CCU DATA LEVEL
IC3 NJM4560M
Q14 2SC1623
Q15 2SC1623
Q16 2SC1623
Q17 2SC1009A
Q18 2SC2714
L5 10μH
R66 1k
R72 22
C42 100p
C41 10 16V
CARBON
MIC
S1
DYNAMIC
C38 0.01
R69 150k
C39 2.2 35V
R70 1500
D8 1SS123
D9 1SS123
RV4 10k
C44 35V
R74 100k
R78 1k
R79 5600
C40 2.2 35V
R71 8.2
R73 1500
R75 10
R77 100k
C43 2.2 35V
D10 1SS123
RV8 20k
R65 1500
R67 330k
R68 330k
R76 10k
R80 47k
C46 2.2 35V
R82 1500
D11 RD7.5EL
C47 47 10V
R83 10k
D12 1SS123
D14 FC53M
R84 330k
L6 22μH
R85 13k
C48 120p
C49 0.1
D13 1SS123
R87 33k
R88 15k
R86 22k
C51 150p
LV3
C53 100p
R90 2200
C54 1000p
C52 390p
R89 1k
R91 10
R92 100k
R93 10k
C127 1000p
R94 1M
R95 33k
R97 620
C56
TP3
CF3 5.7MHz
R100 620
C55 0.1
R99 220
R96 33k
R98 3300
RV5 2k
R81 47k
C45 0.1
RV4;
RV8;
LV3;
RV5:CHU INCOM LEVEL
Q5 2SC3115
Q6 2SC3115
Q7 2SC3115
Q8 2SC3115
Q9 2SC1623
Q10 2SA812
IC2 NJM4560M
Q11 2SC1623
Q12 2SC1009A
Q13 2SC2714
L2 10μH
D1 1S2137
C16 50V
C17 50V
R25 22k
R26 22k
R31 22k
R32 22k
R27 330k
R28 330k
C18 10 16V
R29 22
C19 10 16V
R30 22
R34 4700
R35 4700
C22 33 6.3V
R38 470
R39 15k
R33 15k
C21 10 16V
R36 5600
R37 5600
R40 220
R45 10
R41 20k
RV2 10k
R42 5600
R43 5600
R46 4700
R44 20k
C24 1 35V
C25 22 16V
C26 2.2 35V
C27 2.2 35V
C28 47 10V
L3 10μH
D19 1SS123
R48 12k
D5 1SS123
D7 FC53M
D23 FC53M
R47 330k
L4 22μH
R49 18k
C29 390p
C30 0.1
D6 1SS123
R51 22k
R52 10k
R50 22k
C31 22p
C32 120p
LV2
C34 100p
R56 2200
C35 1000p
C33 390p
R53 1k
R57 0
R58 1M
R55 100k
C126 1000p
R59 33k
R61 470
C37 0.1
TP2
CF2 6.2MHz
R64 470
C36 0.1
R63 220
R60 33k
R62 3300
RV3 1k
RV2;
LV2;
RV3:MIC LEVEL

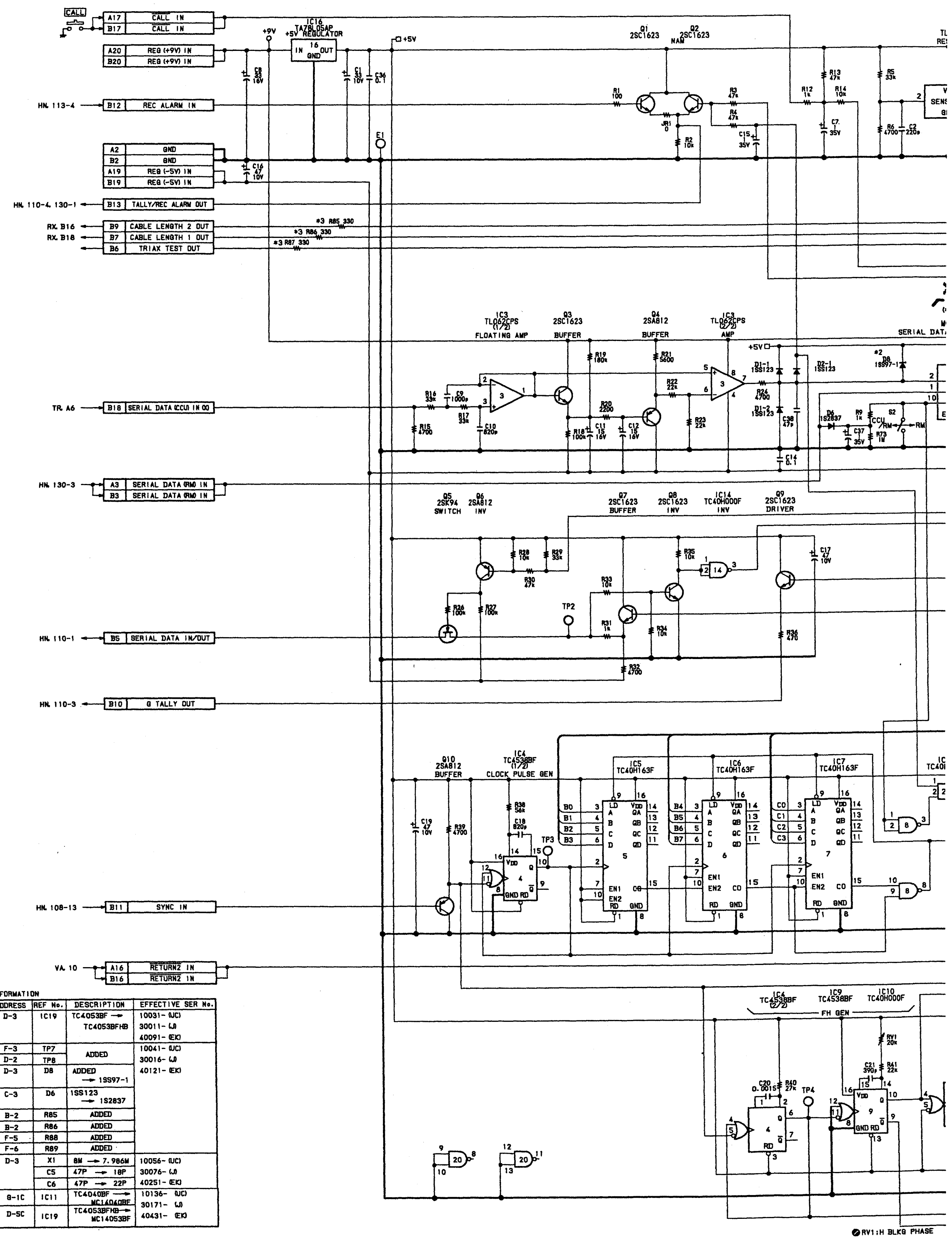

Q22 2SA1226
Q23 2SC2714
Q24 2SA1226
Q30 2SC1623
Q29 2SA1226
Q28 2SA1226
Q27 2SC1623
IC5 TA7303P
Q26 2SC1623
R107 10
R108 5.6
R109 5.6
C59 0.1
TP4
C61 0.1
R110 75
J1
R147 1k
FL1
LPF
C83 0.1
L8 10μH
C64 22 35V
C128 0.1
C60 0.1
R146 22k
C82 0.1
R215 1k
R145 47k
R144 2200
R143 1k
CF4 4.5MHz
R138 1800
R140 100
C81 560p
R139 100
C80 0.1
R136 33k
R141 1k
C129
L11 10μH
R142 33k
C78 0.1
R135 10k
C79 0.1
C77 10 16V
R133 10k
R134 2200
Q27
R131 100k
R132 100k
C76 47p
LV4
C75 22p
Vcc
IF AMP
FILTER
FM DETECT
GND
C74 22 16V
R130 33k
R129 39k
C73 820p
C72 390p
R128 3900
TP5
C71 35V
C70 35V
RV6 20k
R127 22k
R125 15k
R126 22k
S2-1 MIX SEP
C137 0.1
C87 100p
S2-2 SEP MIX
R123 33k
R124 33k
C136 35V
RV6
NJ
L9 10μH
Q25 2SA812
D15 1SS123
R217 100k
R113 22
R112 100k
C130 0.1
C62 10 16V
C63 22 16V
Q34 2SA1226
Q33 2SA1226
Q32 2SC1623
IC7 TA7303P
Q31 2SC1623
R174 620
CF5 4.9MHz
R168 1800
R170 100
C99 560p
R169 100
C96 0.1
R167 33k
R171 620
C131
L12 10μH
R173 33k
C97 0.1
R166 10k
C98 0.1
C95 10 16V
R164 10k
R165 2200
R162 100k
R163 100k
C94 39p
LV5
C93 22p
C92 22 16V
R161 33k
R160 39k
C91 470p
C90 220p
R159 3900
TP6
C89 35V
C88 35V
RV7 20k
R158 22k
RV7
L10 10μH
C132 0.1
C134 0.1
Q39 2SA1226
Q38 2SA1226
IC9 TA7303P
IC8 TL062CPS (1/2)
IC10 TL062CP (1/2)
Q37 2SC1623
Q36 2SA812
R197 1k
CF6 3.6MHz
R191 1800
R193 100
C114 560p
R192 100
C111 0.1
R190 33k
R195 1k
C133
L13 10μH
R196 33k
C112 0.1
R189 10k
C113 0.1
C110 10 16V
R188 10k
R214 2200
C109 68p
LV6
C108 39p
C107 22 16V
R187 27k
R186 33k
C104 180p
R184 100k
R185 10k
C105 1500p
C106 33 10V
TP7
C103 35V
C102 35V
R198 33k
D17 1S2835
R199 33k
C115 0.1
R183 470k
R182 100k
C101 15 16V
C100 4.7 16V
R181 2200
Q40 2SA1226
Q41 2SA1226
IC11 TA7303P
IC10 TL062CPS (2/2)
R212 1k
CF7 3.9MHz
R206 1800
R208 100
C124 560p
R207 100
C121 0.1
R205 33k
R210 1k
*2
C135 160p
L14 10μH
R211 33k
C122 0.1
R204 10k
C123 0.1
C120 10 16V
R203 10k
C119 56p
LV7
C118 39p
C117 22 16V
R202 36k
C116 560p
R201 22k
TP8
R200 1k
*1
D18 RDS. 6E-L2

G | H | I | J


IC4
NJM4556M
(1/2)
IC4
NJM4556M
(2/2)
R116
22
C66
47
10V
R122
22k
R120
100
R115
10
C65
22
16V
R119
5600
R117
150k
CCU INCOM OUT (X)
B8
CCU INCOM OUT (G)
B9
HN. 122-2
36
5V
R121
100
C68
100p
C67
4.7
10V
R114
100k
INCOM LEVEL (B) IN
B13
INCOM LEVEL (C) IN
B16
INCOM LEVEL (A) OUT
B14
RV101
INCOM
LEVEL
IC6
J4556M
R150
22
C85
47
10V
R154
100
R149
10
C84
22
16V
R153
5600
PGM OUT (X)
B6
PGM OUT (G)
B7
HN. 122-4
R157
22k
R156
100
C86
4.7
10V
R152
150k
R148
100k
PGM LEVEL (B) IN
B10
PGM LEVEL (C) IN
B12
PGM LEVEL (A) OUT
B11
RV102
PGM
LEVEL
Q36
2SA812
IC8
TL062CPS (2/2)
Q35
2SA812
R180
3300
D16
1SS97
R177
47k
R178
47k
181
200
R176
22k
Q35
R213
100
CCU DATA OUT (X)
A6
CCU DATA OUT (G)
A5
HN. 105-B18
101
15
6V
16V
R179
22k
R175
10k
H CONT OUT
A9
HN. 106-22

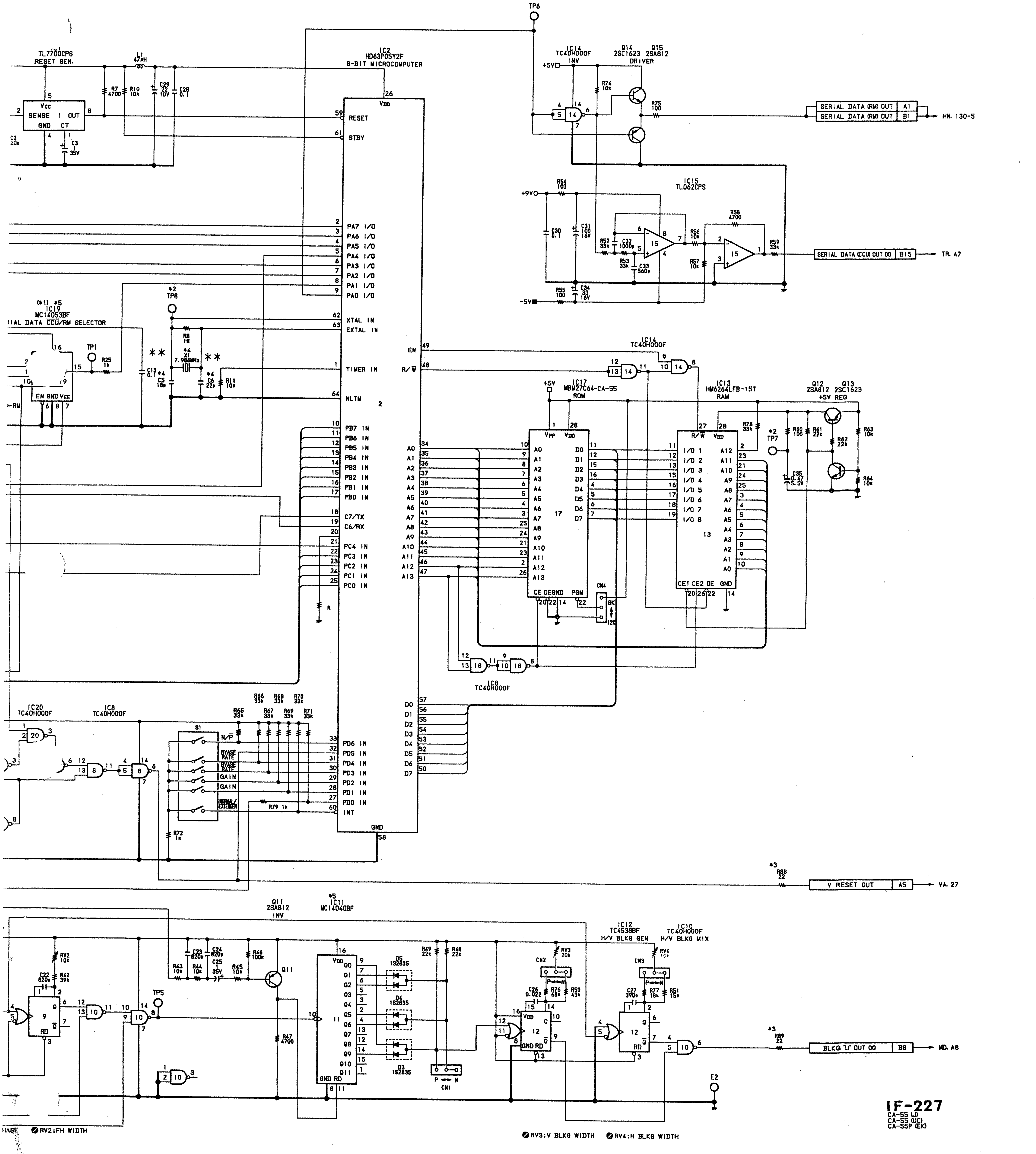
TR-47 BOARD
CA-55 (UC, J)
CA-55P (EK)

IF-227 BOARD


CALL
A17 CALL IN
B17 CALL IN
A20 REG (+9V) IN
B20 REG (+9V) IN
HN. 113-4
B12 REC ALARM IN
A2 GND
B2 GND
A19 REG (-5V) IN
B19 REG (-5V) IN
HN. 110-4, 130-1
B13 TALLY/REC ALARM OUT
RX. B16
B9 CABLE LENGTH 2 OUT
RX. B18
B7 CABLE LENGTH 1 OUT
B6 TRIAX TEST OUT
IC16 TA78L05AP +5V REGULATOR
+9V
+5V
E1
Q1 2SC1623
Q2 2SC1623
NAM
TR. A6
B18 SERIAL DATA (CCU) IN (X)
IC3 TL062CPS (1/2) FLOATING AMP
Q3 2SC1623 BUFFER
Q4 2SA812 BUFFER
IC3 TL062CPS (2/2) AMP
SERIAL DATA
HN. 130-3
A3 SERIAL DATA (RM) IN
B3 SERIAL DATA (RM) IN
Q5 2SK94 SWITCH
Q6 2SA812 INV
Q7 2SC1623 BUFFER
Q8 2SC1623 INV
IC14 TC40H000F INV
Q9 2SC1623 DRIVER
TP2
HN. 110-1
B5 SERIAL DATA IN/OUT
HN. 110-3
B10 G TALLY OUT
Q10 2SA812 BUFFER
IC4 TC4538BF (1/2) CLOCK PULSE GEN
IC5 TC40H163F
IC6 TC40H163F
IC7 TC40H163F
TP3
HN. 108-13
B11 SYNC IN
VA. 10
A16 RETURN2 IN
B16 RETURN2 IN
IC4 TC4538BF (2/2)
IC9 TC4538BF
IC10 TC40H000F
FH GEN
TP4
RV1 20k
RV1: H BLKG PHASE

*CHANGE INFORMATION

*MARK	ADDRESS	REF No.	DESCRIPTION	EFFECTIVE SER No.
*1	D-3	IC19	TC4053BF → TC4053BFHB	10031- (UC) 30011- (J) 40091- (EK)
*2	F-3	TP7	ADDED	10041- (UC) 30016- (J) 40121- (EK)
	D-2	TP8		
	D-3	D8	ADDED → 1SS97-1	
*3	C-3	D6	1SS123 → 1S2837	
	B-2	R85	ADDED	
	B-2	R86	ADDED	
	F-5	R88	ADDED	
	F-6	R89	ADDED	
** *4	D-3	X1	8M → 7.986M	10056- (UC)
		C5	47P → 18P	30076- (J)
		C6	47P → 22P	40251- (EK)
** *5	B-1C	IC11	TC4040BF → MC14040BF	10136- (UC) 30171- (J) 40431- (EK)
	D-5C	IC19	TC4053BFHB → MC14053BF	


TP6
IC1 TL7700CPS RESET GEN.
L1 47µH
R7 4700
R10 10k
C29 22 10V
C28 0.1
Vcc SENSE 1 OUT GND CT
C2 20p
C3 1 35V
IC2 HD63P05Y2F 8-BIT MICROCOMPUTER
VDD
RESET
STBY
PA7 I/O
PA6 I/O
PA5 I/O
PA4 I/O
PA3 I/O
PA2 I/O
PA1 I/O
PA0 I/O
XTAL IN
EXTAL IN
TIMER IN
NLTM
PB7 IN
PB6 IN
PB5 IN
PB4 IN
PB3 IN
PB2 IN
PB1 IN
PB0 IN
C7/TX
C6/RX
PC4 IN
PC3 IN
PC2 IN
PC1 IN
PC0 IN
PD6 IN
PD5 IN
PD4 IN
PD3 IN
PD2 IN
PD1 IN
PD0 IN
INT
GND
EN
R/W̄
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13
D0 D1 D2 D3 D4 D5 D6 D7
IC14 TC40H000F INV
+5V
Q14 2SC1623 Q15 2SA812 DRIVER
R74 10k
R75 100
SERIAL DATA (RM) OUT A1
SERIAL DATA (RM) OUT B1
HN. 130-5
IC15 TL062CPS
+9V
R54 100
C30 0.1
C31 100 16V
R52 33k
C32 1000p
R53 33k
C33 560p
R58 4700
R56 10k
R57 10k
R59 33k
SERIAL DATA (CCU) OUT (X) B15
TR. A7
-5V
R55 100
C34 33 16V
(*1) *5 IC19 MC14053BF
SERIAL DATA CCU/RM SELECTOR
EN GND VEE
TP1
R25 1k
*2 TP8
R8 1M
*4 X1 7.986MHz
C13 0.1
*4 C5 18p
*4 C6 22p
R11 10k
**
IC14 TC40H000F
IC17 MBM27C64-CA-55 ROM
VPP VDD
CE OE GND PGM
CN4 8K 12K
IC13 HM6264LFB-15T RAM
R/W VDD
I/O 1 I/O 2 I/O 3 I/O 4 I/O 5 I/O 6 I/O 7 I/O 8
A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0
CE1 CE2 OE GND
Q12 2SA812 Q13 2SC1623 +5V REG
R78 33k
*2 TP7
R60 100
R61 22k
R62 22k
R63 10k
R64 10k
C35 0.47 5.5V
IC8 TC40H000F
R
IC20 TC40H000F
IC8 TC40H000F
R65 33k
R66 33k
R67 33k
R68 33k
R69 33k
R70 33k
R71 33k
S1
N/P
BYASE RATE
BYASE RATE
GAIN
GAIN
NORMAL/EXTENDER
R79 1k
R72 1k
*3 R88 22
V RESET OUT A5
VA. 27
Q11 2SA812 INV
*5 IC11 MC14040BF
RV2 10k
R42 39k
C22 820p
R43 10k
C23 820p
R44 10k
C24 820p
C25 1 35V
R45 10k
R46 100k
R47 4700
TP5
Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11
GND RD
D5 1S2835
D4 1S2835
D3 1S2835
R49 22k
R48 22k
CN1 P N
IC12 TC4538BF H/V BLKG GEN
IC10 TC40H000F H/V BLKG MIX
RV3 20k
RV4 10k
CN2 P N
CN3 P N
C26 0.022
R76 68k
R50 43k
C27 390p
R77 18k
R51 15k
*3 R89 22
BLKG (X) OUT (X) B8
MD. A8
E2
HASE
RV2:FH WIDTH
RV3:V BLKG WIDTH
RV4:H BLKG WIDTH

IF-227
CA-55 (J)
CA-55 (UC)
CA-55P (EK)

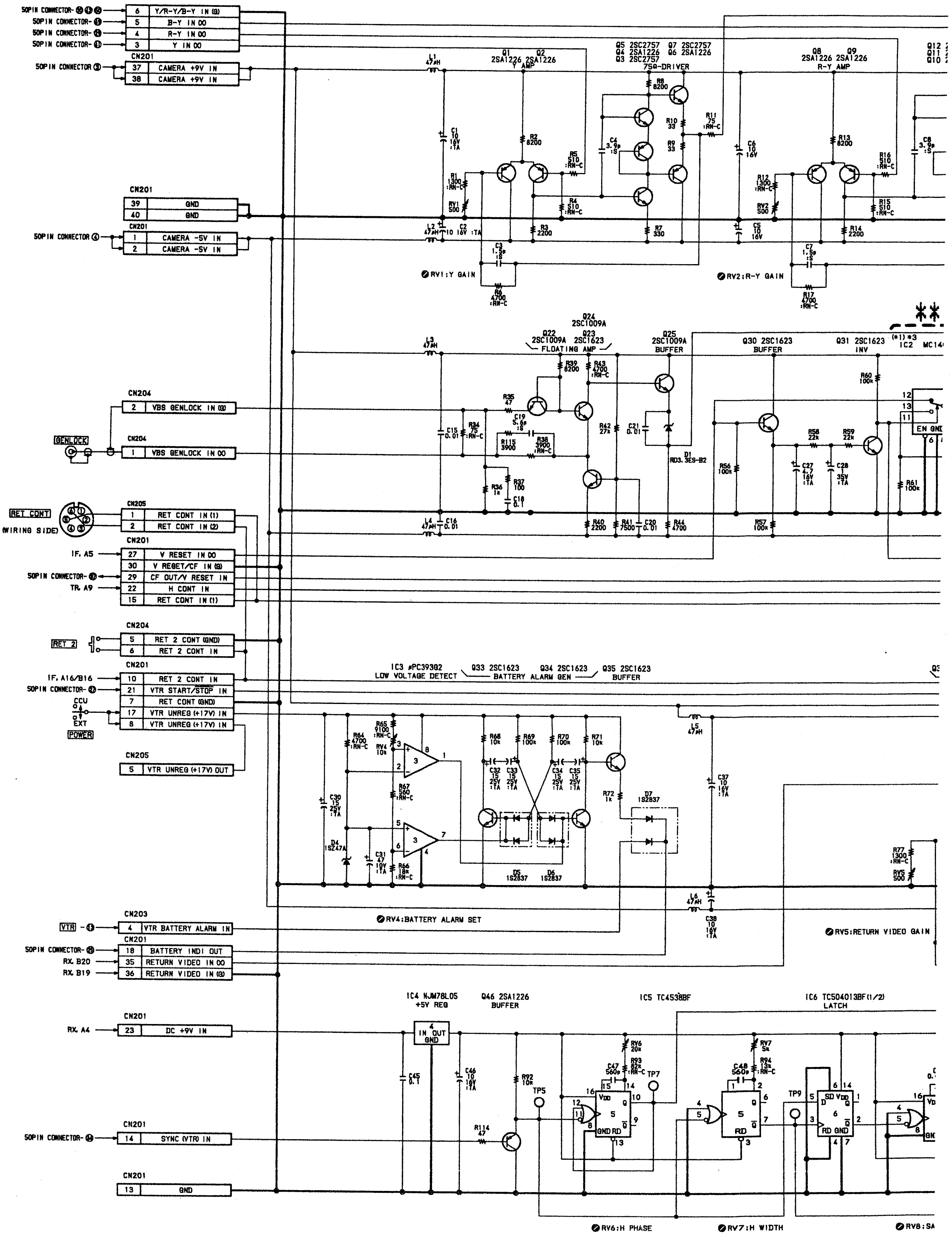
* NOTE

*MARK	ADDRESS	REF NO.	DESCRIPTION	
*1	D-3 E-3	IC2	TC4053BF → TC4053BFHB	30011- (J) 40041- (EK)
	F-5	R111	22K+4.7K → 3.3K	10011- (UC) 30011- (J) 40011- (EK)
			3.3K → 1K	10041- (UC) 30016- (J) 40121- (EK)
	E-5	Q52	ADD → 2SC1623	
	E-3	Q53	ADD → 2SA812	
	E-3	R116	ADD → 8200	
	E-5	R117, 118	ADD → 10K	
	E-3	R119	ADD → 47	

**

*MARK	ADDRESS	REF NO.	DESCRIPTION	EFFECTIVE SER NO
*2	E-5	R109	100K → 220K	10041- (UC) 30016- (J) 40121- (EK)
	F-5	D12	ADD → 1SS97-1	
	E-5	R110	DELETE	
	E-5	R105	100K → 22K	
*3	H-6	IC2	TC4053BFHB → MC14053BF	10136- (UC) 30171- (J) 40431- (EK)

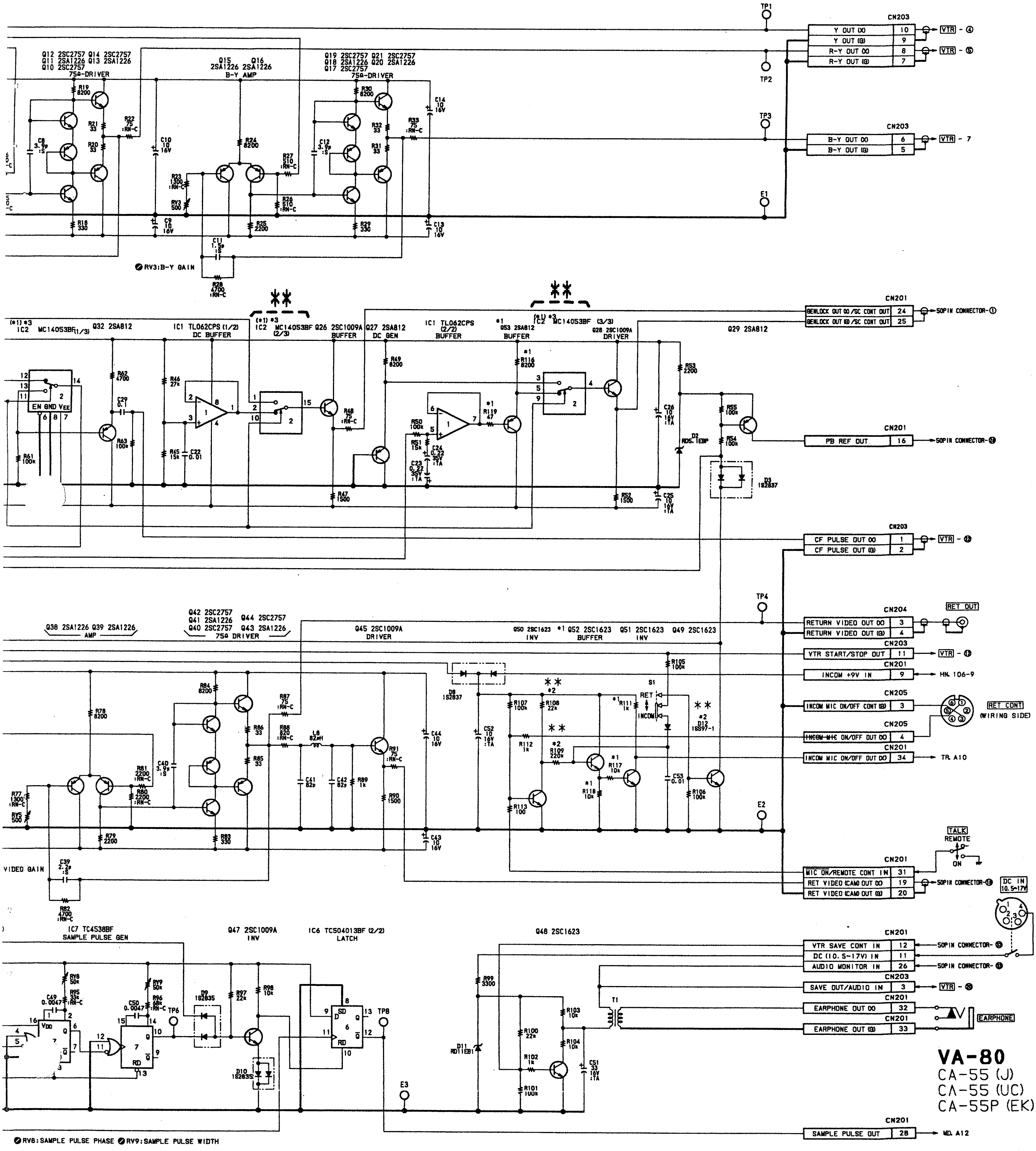
VA-80 BOARD
RET VIDEO, INCOM GEN
BATTERY ALARM GEN
SAMPLE PULSE GEN
EARPHONE DRIVER
Y, R-Y, B-Y AMP
GENLOCK AMP
RET VIDEO AMP


CN201
50PIN CONNECTOR
6 Y/R-Y/B-Y IN (G)
5 B-Y IN (X)
4 R-Y IN (X)
3 Y IN (X)
37 CAMERA +9V IN
38 CAMERA +9V IN
39 GND
40 GND
50PIN CONNECTOR ④
1 CAMERA -5V IN
2 CAMERA -5V IN
L1 47μH
Q1 2SA1226 Q2 2SA1226 Y AMP
Q5 2SC2757 Q7 2SC2757
Q4 2SA1226 Q6 2SA1226
Q3 2SC2757 75Ω-DRIVER
Q8 2SA1226 Q9 2SA1226 R-Y AMP
RV1:Y GAIN
RV2:R-Y GAIN
Q24 2SC1009A
Q22 2SC1009A Q23 2SC1623 FLOATING AMP
Q25 2SC1009A BUFFER
Q30 2SC1623 BUFFER
Q31 2SC1623 INV
(*1) *3 IC2 MC14
D1 RD3.3ES-B2
CN204
2 VBS GENLOCK IN (G)
GENLOCK
1 VBS GENLOCK IN (X)
CN205
RET CONT
(WIRING SIDE)
1 RET CONT IN (1)
2 RET CONT IN (2)
IF. A5
27 V RESET IN (X)
30 V RESET/CF IN (G)
29 CF OUT/V RESET IN
TR. A9
22 H CONT IN
15 RET CONT IN (1)
RET 2
5 RET 2 CONT (GND)
6 RET 2 CONT IN
IF. A16/B16
10 RET 2 CONT IN
21 VTR START/STOP IN
CCU
EXT
POWER
7 RET CONT (GND)
17 VTR UNREG (+17V) IN
8 VTR UNREG (+17V) IN
5 VTR UNREG (+17V) OUT
IC3 μPC393G2 LOW VOLTAGE DETECT
Q33 2SC1623 Q34 2SC1623 BATTERY ALARM GEN
Q35 2SC1623 BUFFER
D4 1SZ47A
D5 1S2837 D6 1S2837
D7 1S2837
RV4:BATTERY ALARM SET
RV5:RETURN VIDEO GAIN
CN203
VTR
4 VTR BATTERY ALARM IN
18 BATTERY INDI OUT
RX. B20
35 RETURN VIDEO IN (X)
RX. B19
36 RETURN VIDEO IN (G)
RX. A4
23 DC +9V IN
IC4 NJM78L05 +5V REG
Q46 2SA1226 BUFFER
IC5 TC4538BF
IC6 TC4013BF(1/2) LATCH
TP5
TP7
TP9
14 SYNC (VTR) IN
13 GND
RV6:H PHASE
RV7:H WIDTH
RV8:SA

CA-55 (UC) 1-R2
CA-55 (J) 1-R2
CA-55P (EK) 1-R2

TIVE SER NO
· (UC)
· (J)
· (EK)

· (UC)
· (J)
· (EK)


Q12 2SC2757 Q14 2SC2757
Q11 2SA1226 Q13 2SA1226
Q10 2SC2757
75Ω-DRIVER
Q15 2SA1226 Q16 2SA1226
B-Y AMP
Q19 2SC2757 Q21 2SC2757
Q18 2SA1226 Q20 2SA1226
Q17 2SC2757
75Ω-DRIVER
TP1
TP2
TP3
E1
CN203
Y OUT (X) 10
Y OUT (G) 9
R-Y OUT (X) 8
R-Y OUT (G) 7
VTR - ④
VTR - ⑤
B-Y OUT (X) 6
B-Y OUT (G) 5
VTR - 7
RV3:B-Y GAIN
IC2 MC14053BF (1/3)
Q32 2SA812
IC1 TL062CPS (1/2) DC BUFFER
IC2 MC14053BF (2/3)
Q26 2SC1009A BUFFER
Q27 2SA812 DC GEN
IC1 TL062CPS (2/2) BUFFER
Q53 2SA812 BUFFER
IC2 MC14053BF (3/3)
Q28 2SC1009A DRIVER
Q29 2SA812
CN201
GENLOCK OUT (X) /SC CONT OUT 24
GENLOCK OUT (G) /SC CONT OUT 25
50PIN CONNECTOR-①
PB REF OUT 16
50PIN CONNECTOR-⑦
D2 RD5.1EBP
D3 1S2837
CN203
CF PULSE OUT (X) 1
CF PULSE OUT (G) 2
VTR - ②
TP4
Q38 2SA1226 Q39 2SA1226 AMP
Q42 2SC2757 Q44 2SC2757
Q41 2SA1226
Q40 2SC2757 Q43 2SA1226
75Ω DRIVER
Q45 2SC1009A DRIVER
Q50 2SC1623 INV
Q52 2SC1623 BUFFER
Q51 2SC1623 INV
Q49 2SC1623
CN204
RETURN VIDEO OUT (X) 3
RETURN VIDEO OUT (G) 4
RET OUT
CN203
VTR START/STOP OUT 11
VTR - ⑪
CN201
INCOM +9V IN 9
HN. 106-9
CN205
INCOM MIC ON/OFF CONT (G) 3
RET CONT
(WIRING SIDE)
CN205
~~INCOM MIC~~ ON/OFF OUT (X) 4
CN201
INCOM MIC ON/OFF OUT (X) 34
TR. A10
D8 1S2837
S1 RET INCOM
D12 1SS97-1
E2
VIDEO GAIN
TALK
REMOTE
ON
CN201
MIC ON/REMOTE CONT IN 31
RET VIDEO (CAM) OUT (X) 19
RET VIDEO (CAM) OUT (G) 20
50PIN CONNECTOR-⑪
DC IN 10.5~17V
IC7 TC4538BF SAMPLE PULSE GEN
Q47 2SC1009A INV
IC6 TC504013BF (2/2) LATCH
Q48 2SC1623
CN201
VTR SAVE CONT IN 12
DC (10.5~17V) IN 11
AUDIO MONITOR IN 26
50PIN CONNECTOR-⑫
50PIN CONNECTOR-⑬
CN203
SAVE OUT/AUDIO IN 3
VTR - ③
CN201
EARPHONE OUT (X) 32
CN201
EARPHONE OUT (G) 33
EARPHONE
TP6
TP8
E3
D9 1S2835
D10 1S2835
D11 RD11EB1
T1
CN201
SAMPLE PULSE OUT 28
MD. A12
RV8:SAMPLE PULSE PHASE RV9:SAMPLE PULSE WIDTH

VA-80
CA-55 (J)
CA-55 (UC)
CA-55P (EK)

D | E | F

B-CA55-VA8

UPDATE INFORMATION

MODEL NAME	CA-50P (EK) Operation and Maintenance Manual
REVISION NO.	2nd Edition Revised 6
DATE	1991.5

Rev. No.	S. No.	Action	Page
E2 R4	11051-11190	Replace	7-5 to 7, 11 to 13
			8-12, 14
	10941-11190	Replace	7-25 to 27
	11151-11190	Replace	7-17 to 18
			8-11
E2 R5	11301-11350	Replace	7-5 to 7, 12, 13
			8-10, 12, 14
E2 R6	11351 and higher	Replace	8-2 to 4, 12, 15
			7-5 to 7, 11 to 13

1) "Rev.No." is the corresponding revised number of the service manual for the customer.
   E1 R1 means 1st Edition Revised 1.
   "Serial Number" is the serial number range which the Rev.No. in the left column covers.

2) The changed portions are indicated by doted line and/or "**" (double asterisk).

3) "N.A." in the serial number column means there is no machine covering this revision.
   The machine for the different market, e.g. Japan, may exist for this manual revision.

8-2. EXPLODED VIEW

No.	Parts No.	SP	Description
1	A-7513-625-B	o	MOUNTED CIRCUIT BOARD "IF-191/191P"
2	A-7513-627-A	o	MOUNTED CIRCUIT BOARD "IF-192"
3	A-7513-628-A	o	MOUNTED CIRCUIT BOARD "AU-107"
4	A-7513-629-A	o	MOUNTED CIRCUIT BOARD "AU-108"
5	A-7513-631-A	o	MOUNTED CIRCUIT BOARD "HN-95"
**6	X-2380-727-2	o	PLATE (R) ASSY, SIDE
7	X-2380-728-1	o	BRACKET SUB ASSY, CONNECTOR (FOR J,EK)
	X-2380-745-1	o	BRACKET SUB ASSY, CONNECTOR Ser.No 10371 ~ (FOR UC)
8	X-2380-729-1	o	CABINET BLOCK ASSY
9	X-2380-732-1	o	ASSY, SIDE PLATE (L)
10	X-3710-037-1	o	SUSPENSION ASSY (C)
11	1-230-350-11	s	RES, VAR, CARBON 20K "INCOM LEVEL" "PGM LEVEL"
12	1-507-251-31	s	JACK (JM35, M10) "EARPHONE"
**13	1-507-184-11	s	JACK, PHONE "INCOM" "PGM" (FOR J,EK)
14	1-509-176-31	s	RECEPTACLE, 3P MALE "MIC IN" (J)
	1-509-184-31	s	RECEPTACLE, 3P FEMALE "MIC IN" (UC,EK)
15	1-532-681-00	s	CIRCUIT BREAKER
16	1-553-739-21	s	SWITCH KEYBOARD "CALL" "RET2"
17	1-560-331-00	o	RECEPTACLE, 41P MALE "CCU"
18	1-560-999-11	s	RECEPTACLE, 4P MALE "DC IN"
19	1-561-781-21	o	RECEPTACLE, BNC "RET OUT" "GEN LOCK"
20	1-562-083-00	s	RECEPTACLE, 50P FEMALE
21	1-562-244-00	o	RECEPTACLE, 26P MALE "VTR"
22	1-563-929-11	s	RECEPTACLE, 4P FEMALE "DC OUT"
23	1-623-616-11	o	PRINTED CIRCUIT BOARD "SW-253"
24	1-571-367-11	s	SWITCH, TOGGLE "POWER ON/OFF"
25	1-561-368-11	s	SWITCH, TOGGLE "MIC INT/EXT" "TALK ON/REMOTE"
26	2-090-229-00	s	NUT, PLATE
27	2-122-059-01	o	SPRING
28	2-270-650-00	o	INSULATOR (FOR J,EK)
29	2-359-964-02	o	SCREW
30	2-359-972-02	o	PLATE (LEFT), SIDE
31	2-359-975-02	o	PLATE, VR
32	2-359-976-01	o	PLATE, XLR
33	2-359-977-01	o	NAME PLATE
34	2-359-978-01	o	NUT (CCW), PLATE
35	2-359-980-01	s	PAD, CHEEK
36	2-359-987-01	o	RAIL (UPPER), PC BOARD
37	2-359-988-01	o	RAIL (LOWER), PC BOARD
38	2-359-991-01	o	COVER, UPPER
39	2-359-994-01	o	HOLDER, THYRISTOR
40	3-437-228-01	s	INSULATOR, JACK
41	3-437-229-01	s	INSULATOR (B), JACK
42	3-657-627-00	s	KNOB (2)
43	3-664-213-00	o	SCREW, STOPPER
44	3-664-218-00	o	SHUE
45	3-664-228-00	o	PLATE, SPRING
46	3-673-018-11	o	SCREW, BLIND
47	3-676-125-00	o	PIN, STOPPER
48	3-676-244-00	s	COVER, SWITCH
49	3-676-269-00	s	CAP (50P SOCKET SIDE), DUST
50	3-676-349-00	o	SHUE, V
51	3-676-352-00	s	CAP, C HOLDER
52	3-676-365-04	o	HOLDER, V CONNECTOR
53	3-676-369-00	o	NUT, SPACER
54	3-676-370-00	s	PIN, HOLDER, CN
55	3-676-371-00	o	NUT (S), PLATE
56	3-680-529-00	o	BUSHING, INSULATING
57	3-685-104-01	s	NUT (M6), CONTROL
58	3-703-037-00	s	INSULATOR, TO-220
59 **	3-729-091-01	s	SCREW (M4X17.5)
60	3-710-033-03	o	PLATE, SHIELD, PC BOARD
61	3-711-710-01	o	RUBBER, SHIELD
62	3-717-823-01	s	COVER, BNC
63	3-849-405-02	s	COVER, EARPHONE JACK
64	3-888-428-00	s	PACKING, SPEAKER KNOB
65	1-623-748-11	s	PRINTED CIRCUIT BOARD "LF-14"
66	3-711-775-01	o	LEVER, PULL
67	1-563-159-11	s	CONNECTOR (RECEPTACLE).5P Ser.No 10371 ~ (FOR UC)
68	2-126-659-02	o	NUT (INCOM),PLATE Ser.No 10371 ~ (FOR UC)
69	2-128-288-01	s	SHEET (2), INCOM Ser.No 10371 ~ (FOR UC)

HN-95 BOARD

Ref.No.	Parts No.	SP	Description
	A-7513-631-B	o	MOUNTED CIRCUIT BOARD "HN-95"
C1	1-124-480-11	s	ELECT 470 20% 25V
CN100	1-563-239-11	s	RECEPTACLE, 40P FEMALE
CN101	1-563-239-11	s	RECEPTACLE, 40P FEMALE
CN102	1-563-239-11	s	RECEPTACLE, 40P FEMALE
D1	8-719-931-22	s	EQB01-22
D2	8-719-931-22	s	EQB01-22
S1	1-570-839-11	s	SLIDE

IF-191/191P BOARD

Ref.No.	Parts No.	SP	Description
	A-7513-625-B	o	MOUNTED CIRCUIT BOARD "IF-191/191P"
C16	1-107-040-00	s	MICA 1.5PF±0.5PF 500V
C21	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C26	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C30	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C31	1-124-584-00	s	ELECT 100 20% 10V
C48	1-107-046-00	s	MICA 4.7PF±0.5PF 500V
C51	1-162-711-11	s	CERAMIC 110PF 1% 50V
C52	1-107-049-00	s	MICA 8.2PF±0.5PF 500V
C53	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
C54	1-107-047-00	s	MICA 5.6PF±0.5PF 500V
C56	1-107-044-00	s	MICA 3.3PF±0.5PF 500V
C57	1-107-042-00	s	MICA 2.2PF±0.5PF 500V
C63	1-107-209-00	s	MICA 20PF 5% 500V
C64	1-107-026-00	s	MICA 5.1PF±0.5PF 500V
C65	1-107-208-00	s	MICA 18PF 5% 500V
C66	1-162-873-11	s	CERAMIC 56PF 5% 50V
C67	1-107-026-00	s	MICA 5.1PF±0.5PF 500V
C68	1-107-019-00	s	MICA 1PF±0.5PF 500V
C72	1-162-718-11	s	CERAMIC 220PF 1% 50V
C85	1-107-040-00	s	MICA 1.5PF±0.5PF 500V
C86	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
C89	1-107-043-00	s	MICA 2.7PF±0.5PF 500V
C90	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
C99	1-107-045-00	s	MICA 3.9PF±0.5PF 500V
CN1	1-506-730-11	o	RECEPTACLE, 40P MALE
CN2	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR
CN3	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR
CN5	1-564-591-11	s	PLUG, SHORT 3P
	1-561-724-00	o	SOCKET, CONNECTOR
D1	8-719-100-03	s	1S2835
D2	8-719-100-03	s	1S2835
D3	8-719-942-33	s	HZ3CLL
D4	8-719-101-58	s	RD5.6EL2
D5	8-719-101-58	s	RD5.6EL2
D6	8-719-942-31	s	HZ3ALL
D7	8-719-100-03	s	1S2835
D8	8-719-101-50	s	RD5.1EL2
D9	8-719-101-39	s	RD3.6EL2
D10	8-719-948-47	s	HSM88AS
D11	8-719-948-47	s	HSM88AS
D12	8-719-948-47	s	HSM88AS
D13	8-719-100-03	s	12835
IC1	8-759-939-68	s	TL062ACPS; TI
IC2	8-759-009-07	s	MC14053BF; MOTOROLA
IC3	8-741-135-60	s	BX1356; SONY
IC4	8-741-135-60	s	BX1356; SONY
IC5	8-741-135-60	s	BX1356; SONY
IC6	8-759-939-68	s	TL062ACPS; TI
IC7	8-759-939-68	s	TL062ACPS; TI
IC8	8-759-009-07	s	MC14053BF; MOTOROLA
IC9	8-741-130-50	s	BX1305; SONY
IC10	8-741-135-60	s	BX1356; SONY
** IC11	8-759-238-58	s	TC74HC221AF; TOSHIBA
IC12	8-759-939-68	s	TL062ACPS; TI
IC13	1-807-422-11	s	BH1217; SONY
IC14	1-807-422-11	s	BH1217; SONY
IC15	1-807-422-11	s	BH1217; SONY
L1	1-408-417-21	s	47μH
L2	1-408-417-21	s	47μH
L3	1-408-417-21	s	47μH
L4	1-408-417-21	s	47μH
L5	1-408-417-21	s	47μH
L6	1-408-417-21	s	47μH
L7	1-408-453-21	s	82μH
L8	1-408-417-21	s	47μH
L9	1-408-417-21	s	47μH

Ref.No.	Parts No.	SP	Description
FRAME			
C1	1-161-051-00	s	CERAMIC 0.01 10% 50V
CB1	1-532-681-00	s	4A
CN1	1-562-083-00	s	RECEPTACLE, 50P FEMALE
	1-562-084-11	s	PLUG CONTACT
	1-562-084-21	s	PLUG CONTACT
	1-562-084-31	s	PLUG CONTACT
CN2	1-562-244-00	o	RECEPTACLE, 26P MALE "VTR"
CN3	1-562-331-00	o	RECEPTACLE, 41P MALE "CCU"
CN4	1-509-176-31	s	RECEPTACLE, 3P MALE "MIC IN" (J)
	1-509-184-31	s	RECEPTACLE, 3P FEMALE "MIC IN" (UC,EK)
CN5	1-560-999-11	s	RECEPTACLE, 4P "DC IN"
CN6	1-561-781-21	s	RECEPTACLE, BNC "GEN LOCK"
CN7	1-561-781-21	s	RECEPTACLE, BNC "RET OUT"
CN8	1-563-929-11	s	RECEPTACLE, 4P FEMALE "DC OUT"
D3	8-719-108-18	s	5P6M
FB1	1-543-298-11	s	FERRITE BEAD
FB2	1-543-298-11	s	FERRITE BEAD
FB3	1-543-157-00	s	FERRITE BEAD
FB4	1-543-157-00	s	FERRITE BEAD
FB5	1-543-157-00	s	FERRITE BEAD
FB6	1-543-157-00	s	FERRITE BEAD
** J1	1-507-676-00	s	JACK, PHONE "INCOM"
** J2	1-507-676-00	s	JACK, PHONE "PGM"
J3	1-507-251-31	s	JACK, PHONE "EARPHONE"
R1	1-249-407-11	s	CARBON 150 5% 1/4W
R2	1-249-407-11	s	CARBON 150 5% 1/4W
RV1	1-237-981-11	s	CARBON 20K "INCOM LEVEL"
RV2	1-237-981-11	s	CARBON 20K "PGM LEVEL"
S3	1-571-367-11	s	TOGGLE "POWER ON/OFF"
S4	1-571-368-11	s	TOGGLE "TALK ON/REMOTE"
S5	1-571-368-11	s	TOGGLE "MIC INT/EXT"
VDR1	1-806-504-11	s	ERZ-C05DK820
VDR2	1-806-504-11	s	ERZ-C05DK820
VDR3	1-806-504-11	s	ERZ-C05DK820

8-4. SUPPLIED ACCESSORIES

Parts No.	SP	Description
** 3-698-917-01	o	BELT, SHOULDER Serial No. 10001~10710 (UC) Serial No. 10001~10500 (J) Serial No. 10001~11350 (EK)
** X-6772-374-A	s	BELT ASSY, Serial No. 10711~ (UC) Serial No. 10501~ (J) Serial No. 11351~ (EK)